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Facial Paralysis in Mastoiditis*

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My attention has been attracted to this subject because of the pitiful, depressing, permanent disfigurement. This subject should not only be discussed, but every effort made to *manage* it properly. The loss of function of this nerve handicaps one to the extent of tragedy. For a person to go through life with one-half of his face motionless and expressionless, his occupation, his social life, and his attitude toward himself and his external world are made much less pleasant, prosperous, and happy.

Until a few years ago only a moderate amount of work had been done to alleviate this distressing condition. Many methods have been advanced, but most of these have been only to inspire hope for the return of facial movements. We still have no perfect treatment. The medical treatment consists of massage, electrical stimulation, and waiting. The surgical treatment will be considered later.

I do not wish to consider mastoiditis from any relationship other than with facial paralysis or vice versa; that is, paralysis due to nuclear origin in the brain, or from toxins, cerebral hemorrhage, Lues, or any other reason. I shall consider only the causes due to trauma, contused, torn, or completely severed nerve at time of operation, and those due to too tight packing, or fracturing inward of the fallopian canal during operative procedure.

I have been unable to find much data on the number and case percentage of facial paralysis in relation to mastoiditis, either pre or post-operative. I have only to quote the number of mastoid operations done in the Baltimore Eye and Ear Hospital during the year of 1933-34. There were a total of 70 cases—63 simple and seven radicals. Two cases of facial paralysis developed from the simple mastoids, coming on immediately, and to date one has remained permanent, the other clearing up to about 85 per cent return of function in five months. No case of paralysis developed in any of the seven cases of radical mastoidectomies. In Ancker Hospital, St. Paul, 66 mastoidectomies, one radical, were done during the year 1934-1935 with no cases of facial paralysis. In the last 10 years there have been three cases of facial paralysis at the Ponca City Hospital in 110 cases—only one remains paralyzed.

I have also been unable to find any data on the percentage of cases of acute mastoiditis with facial paralysis before operation who clear up either with, or without, operation. I have seen a few of these cases and all have cleared up in a few days, or a few weeks, post-operative. Some men are of the opinion that all or most of these cases would clear up just as quickly without operation. I do not believe this to be true. Jackson and Coates, and most other textbooks, give facial paralysis in mastoiditis as one of the cases when immediate mastoidectomy should be performed.

The diagnosis of this distressful condition is so easy that it almost "hits you in

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the face." Following a mastoid operation the paralyzed side of the face has no motion or movement, and the lines of the face are so obliterated as to look like a "curtain of tissue" hung on that side of the face. The patient is unable to wrinkle the forehead or close the eye, and care must be taken to avoid dryness of the cornea and ulceration. When the patient laughs, cries, or shows the teeth, the face is pulled toward the opposite side; the paralyzed side remains motionless and expressionless. In the interest of relief for these unfortunate people this paper deals with repair of the facial nerve.

Taste is sometimes interfered with when the chorda tympani has been severed, and occasionally the patient has trouble in chewing the food properly because he cannot keep the cheek moving on that side. As the seventh nerve is purely motor there is no anesthesia or hyperasthesia of the face.

To briefly review the anatomy: The fibres of the facial nerve spring from a nucleus of cells in the lower part of the pons. It enters the internal auditory canal in company with the auditory nerve and the glosso-palatine (or chorda tympani) nerve. At the outer end of the meatus the trunk pierces the arachnoid and dura and enters the facial canal (Fallopian canal).

In its course through the temporal bone the nerve traverses three separate routes:

I. *Labyrinthine segment*: — enters through the internal auditory canal from the posterior cranial fossa, running outward between cochlea and vestibule in a horizontal plane. Here it is not accessible to injury during the mastoid operation unless petrositis has developed. It makes a right angle turn posteriorly at the knee and goes into the—

II. *Tympanic portion* — here it runs backward along the medial wall of the middle ear, just above the oval window and below the horizontal semi-circular canal. It enters the middle ear just above and slightly posterior to the point where the ligament of the tensor tympani muscle is given off for its attachment to the handle of the malleus. This ligament is a reliable guide to the position of the nerve during the radical mastoid. In this middle ear the bone is very thin covering the nerve, and in this portion the nerve is injured more frequently during the radical mastoid. This tympanic portion makes another right angle turn downward to form the mastoid division of the nerve.

III. *Mastoid division* — runs directly downward in the vertical plane along the bottom of the posterior canal wall, leaving the temporal bone through the stylomastoid foramen at the mastoid tip. The average adult canal measures about 25 mm.

Surgical Injury

The *vertical* (mastoid) and tympanic sections are most commonly injured in surgical intervention. The mastoid portion is often injured in searching *too low* for the antrum, fracture of the tip with rongeurs or chiseling the posterior canal wall at too acute an angle during the radical mastoid.

The *tympanic* (horizontal) portion is injured by:

1. The injudicious use of the curet in the auditus.
2. Breaking off of the bridge too violently with the gouge.
3. As the nerve is covered by a very thin bone, undue pressure may cause definite compression.

As the radical operation constitutes a small percentage of the total number of mastoid operations, the *vertical portion of the nerve is most often injured.* In many cases the patients recover when trauma and bruising have not been too great—and in those in whom the nerve exposed by caries and cholesteatoma lies bare and is compressed by too tight packing. These usually do not show a complete paralysis on recovering from the anesthetic. The patients showing complete paralysis have had the nerve cut or bruised usually beyond Nature's repair.

Injury to the facial nerve occurs either from the careless manipulation of the chisel, curet or rongeur forceps during the excavation of the bone while performing the radical mastoid operation, or because of dehiscences or defects in its bony covering which have resulted from necrosis.

In extensive necrosis of the temporal bone the nerve trunk is prone to become

exposed at some point, and this is so especially along the floor or the inner wall of the aditus ad antrum. When thus exposed, unless great care is exercised, the nerve trunk may be severely injured or completely severed during the operation. Furthermore, the nerve may be injured at any point in its course in the fallopian canal, and, when the excavation of the cells and necrosed bone at the mastoid tip requires the exposure of the digastric muscle, there is considerable danger of injuring the facial nerve at its exit from the fallopian canal. The latter form of injury is more liable to occur while operating upon infants and young children. Effusion into the fallopian canal and undue pressure upon an exposed facial nerve by instruments or packing are less serious; nevertheless, they are usually of sufficient severity to induce temporary paralysis of the muscles supplied by this nerve. Anomalies in the course of the facial nerve in rare instances are accountable for operation injuries.

Facial paralysis either temporary or permanent is the deplorable result of injury to the facial nerve. The paralysis is temporary when caused by an injury which does not sever or otherwise destroy the nerve trunk, when resulting from pressure upon an exposed section of the nerve, or when due to inflammatory effusion into the fallopian canal.

Permanent facial paralysis occurs in cases where the nerve trunk has been severed, when a segment had been cut away, or when destroyed at some point by the purulent inflammatory process. In the latter class of cases the facial paralysis is complete; its advent is sudden and sometimes apparent before the patient has completely recovered from the anesthetic.

In case the injury to the facial nerve is slight, the resultant paralysis is rarely complete; it develops gradually and often it does not appear until some days subsequent to the operation.

It is not an uncommon occurrence for facial paralysis of otitic origin to appear in patients upon whom no operation has been performed, in which event its advent is considered to be of serious import, especially when accompanied by labyrinthine symptoms, or when due to the encroachment of tumors. The extent of the paralysis of the facial muscles is ascertained by requesting the patient to smile, to close the eyes, or to whistle.

Cases have been recorded where facial paralysis has disappeared after long periods, even when the nerve trunk has been completely severed, and in a few instances where the nerve has not only been severed, but with more or less destruction to the tissue (Zezold and Pierce). Pierce records one case in which a quarter-section of nerve trunk was destroyed, causing complete facial paralysis, which finally was restored after a period of nine months. The prognosis, therefore, so far as it relates to the restoration of function, depends upon the nature, severity, and extent of the injury which the nerve trunk has received. If due to temporary pressure upon the nerve trunk, to traumatism without destruction of tissue, or to inflammatory effusion into its sheath, a cure may be expected. Notwithstanding the experience above recorded facial paralysis, occurring as a result of complete destruction of the nerve trunk at any point, is almost invariably permanent.

Facial paralysis of otitic origin should not be confused with that known as Bell's paralysis, which is not due to pyogenic invasion of the middle-ear spaces.

Some of the methods of treatment seem good for some cases and useless in others. Some of the methods seem too conservative, while, at times, the most radical seems to be the most conservative treatment.

History

Faure, in 1898, joined the distal end of the paralyzed seventh nerve to the spinal accessory.

Karte, in 1903, first did a hypoglossal facial anastomosis, and this has been done many times since then. The objection to this hypoglossal anastomosis is — the associated movements of the face with the tongue.

Ney states that most lesions of the facial nerve in the canal are probably compressive in nature, and that most cases recovering in a few hours or a few days postoperative are of this naure. Martin, of

San Francisco, has seen five such cases as a result of a radical, all of which recovered in a few months with no treatment except loosening the packing plus massage and electrical stimulation.

Two English surgeons, LODGE and BROOKE, each report cases of plastic operations with grafts from the fascia lata for facial paralysis, but to me the results are poor consolation.

Without leaving conspicuous scars, three new ligaments are grafted into the face, corresponding in position to the inferior portion of the orbicularis oculi, the levator palpebrae superior nasi and the zygomatic major. These sustain the drooping lower lid and palsied side of the mouth and make them conform to a more pleasing facial expression. The material employed is a continuous strip of fascia lata. Two short incisions are made, exposing the temporal fascia and the internal palpebral ligament respectively. A third, tiny incision is made at the junction of the skin and mucous membrane at the angle of the mouth. Next, a strip of fascia lata five mm. wide from the thigh has been threaded along a triangular course between the three facial incisions, among the atrophied muscles, with the aid of a packing needle. The two free ends are drawn taut and woven into the fibres of the temporal fascia.

The advantages advanced for this operation are: Its immediate effect; its simplicity; can be done under local anesthesia; needs no special technique or detailed anatomical knowledge, and is less dangerous. The disadvantages are that in time the fascia may stretch, and it does not cure the distressing condition.

ROBERT C. MARTIN, of San Francisco, reports a case of intra-temporal suture of the facial nerve, done in 1930. He states that: 1. Only those with peripheral facial paralysis should be operated. These palsies are complete, whereas the central palsies due to crossed innervation, as well as homolateral innervation of the upper facial division, shows a complete loss of the lower division only. 2. More successful are those showing a complete loss on waking from anesthesia. 3. There should be no nerve deafness or labyrinthine symptoms, as these suggest a lesion proximal to the geniculate ganglion.

J. MORRISSETT SMITH, of New York, reports two cases of decompression of facial nerve for post-operative paralysis. He believes that facial paralysis resulting from a mastoid operation should immediately be followed by a decompression of the facial nerve.

NEY has pointed out that an intact nerve trunk is very resistant to surrounding suppurative processes and that nerves may lie for many months in immediate contact with an active suppuration without functional impairment, while, on the other hand, the facial nerve is extremely susceptible to "compressive" lesions. It completely fills the bony canal which it traverses and its sheath is intimately attached.

In the facial canal the inflammatory exudate and swelling accompanying the injury are immediately converted into compressive factors by the solid bone surrounding the nerve.

The removal of the bone permits the swelling of the nerve and the reparative processes to occur without compression, and it offers the quickest possible repair and restoration of function. After the bone has been removed it is very important to remember that the sheath of the nerve must be opened at the site of injury.

Report of two cases of decompression done for paralysis—one following a simple and the other following a radical mastoid:

Case No. 1. A girl of 10 years developed facial paralysis immediately following a radical mastoid one year and 10 months ago. Forty per cent return of function had already taken place. A left secondary radical was done and decompression of the tympanic and most of the mastoid segments done. The nerve was found to have been injured but not severed in tympanic portion.

Result: Ear dry. Seventy per cent of function recovered four and a half years later.

Case No. 2. Girl, six and one-half years of age, complete facial paralysis the day after simple mastoidectomy. Mastoid wound was immediately reopened. Nerve found injured but not severed in the mas-

toid segment from horizontal semicircular canal almost to stylo-mastoid foramen. Facial ridge lowered; mastoid segment of the nerve decompressed. The drum and ossicles were left in place—flap out.

Result: Facial paralysis completely cleared up four months post-operative.

This next operative procedure done by Dr. Arthur Duel, of New York, and Sir Charles Ballance, who has recently died, of London, seems to me to be one of the most radical yet the most conservative methods yet developed and to offer much more hope which will fit in any case of peripheral paralysis. They worked together on a series of anastomosis with every possible and some well nigh impossible nerves. Many of these were repeated many times. About 140 experiments were done.

In England when a surgeon desires to do an experiment on an animal, he has to obtain a license from the government to do so. In trying to develop some method of restoring facial function without associated movements they did a series of 24 autoplastic grafts varying from one to 16 mm. in length in the facial nerve. These were in baboons, monkeys, and cats. They tried many different nerves, reversed facial grafts, intercostal grafts, cutaneous grafts and the ext. respiratory (long thoracic) nerve of Bell grafts. They tried this last nerve over many times—different lengths, different technique; different animals—in all 24 trials. There were no failures. The face was restored in three to six months. The usual repair in injury cases would not be more than five or six mm.

The length of time since injury due to loss of function and atrophy of the facial muscles and the length of graft required to bridge the gap are important factors. It may be that the perfect results obtained in animals, who require facial motions rather than expressions of emotions, will not prove so perfect in man. Direct repair by an autoplastic graft is obviously a much better method than indirect repair by anastomosis to another nerve.

In some of the anastomosis on monkeys; as in all on man, there are associated movements. These occur when the hypoglossal, the decendens-noni, or the glossopharyngeal nerves are united to the facial. In a lady in whom hypoglosso-facial anastomosis was done nine years ago, a ripple of muscle contractions occurred over the face during fixation of the tongue and swallowing. What surgeon would enjoy eating opposite a patient in whom he had done this operation?

The new method here recommended gets rid of all associated movements.

They give a brief history of 12 cases. Here is one:

Case No. 1: A girl, age eight and one-half years, showed immediate, complete facial paralysis following operation. Exploratory operation was done two days later. The stump was found in the neck at the posterior border of the parotid gland. A faradic current applied to the stump caused contraction of all the muscles of the face on that side. The proximal end was found at the level of the horizontal semicircular canal. The ossicles and drum were removed and the nerve uncovered to the geniculate ganglion (ganglion formed in the fallopian canal just before chorda tympani is given off). The measured distance of the gap was 27 mm. An autoplastic graft was laid in the gutter from the proximal without suture to the distal end which was sutured by one strand of finest silk attached to a needle without a knot.

These cases were operated from a few days to 13 years after operation. In a few of the cases no division of the nerve was found but a depressed fracture of the fallopian canal.

There can be no associated movements because of the gap of the injured nerve has been replaced by a living autoplastic nerve graft which conveys impulses from the cortical center in the brain to the peripheral endings of the facial nerve.

In most cases the operator has no accurate knowledge of how, when, or to what extent the nerve was damaged.

It seems that the most careful watching of the face by the anesthetist during operation for sudden spasm of the face muscles is unreliable. It can be totally severed and no muscular twitching of the face be noted. In nine of the 12 cases, the area of destruction varied from 15 to 40 mm. in length.

SIR CHARLES BALLANCE asks the question, "When shall we operate?" and then he supplies the answer, "NOW!" Delay may make all the difference between success and failure. When facial palsy immediately follows an operation on the mastoid it is advisable to uncover the nerve at once to determine the extent of damage, because compression or slight injury may be remedied by decompression, where delay, bolstered by vain hope, is often most unsatisfactory.

A graft may be introduced at once when the nerve has been destroyed while there can be only a slight atrophy of the muscles and a quick and more perfect result is assured.

DUEL definitely demonstrated, in his animal experiments, that any autoplastic nerve grafts — either motor or sensory — with the nerve direction either maintained or reversed, will successfully bridge the gap and restore the function of a divided facial nerve.

The use of the faradic electrical current in finding the facial trunk is inestimable before the reaction of degeneration has taken place. This reaction probably does not last more than 72 hours.

DUEL reports one case of bilateral facial paralysis, one for 11 years and the other side paralyzed for two weeks. At operation both nerves were uncovered from the stylo-mastoid foramen to the horizontal semicircular canal. In one case the result was amazing. As the sheath was split open the nerve swelled to twice its normal size. Both have now recovered about equally to a marked degree—although not complete.

With human beings, he used the sixth, seventh, or eighth intercostal nerves in all but two cases. It is more easily found than Bell's nerve, especially in fat people, and the length of the nerve required is often too long to enable us to anastomose the ends, and a paralysis of the serratus magnus results, which is more serious than letting the intercostal nerve stay unrepaired.

DUEL and BALLANCE state that no delay in operating is justifiable. We have seen patients treated for six months, a year, or even three years by galvanism, massage, etc. The result is—there is a continuation of the distortion and the facial paralysis. It does not matter to the patient that he has a slight faradic response; what matters to him is that the horrible deformity of facial palsy still persists.

DR. BALLANCE states that he remembers quite well when the first operations for appendicitis were done. They were not performed until the patients were dying. The patients were kept in the medical wards. They had to be "protected" from the surgeons.

Slight suppuration is not a risk in doing this operation. Finer nerves effect more rapid and complete recovery than the larger nerves. There is less probability of a central necrosis. The divided ends of the nerve should not only be united in the facial canal, but it must be decompressed. The periosteal fibrous sheath must be split up. It lies around the neural sheath of the nerve. This is a fundamental principle and the best results will not be gotten unless this is done.

In man it is justifiable to complete the radical mastoid operation if it has not already been done except in cases in which the operation involved only the lower half of the descending portion of the fallopian canal. We are not in favor of an operation which displaces the nerve from the canal.

Case Report: An eight and one-half year old girl operated at Manhattan Eye and Ear Hospital for a post-auricular-subperiosteal abscess, was operated by a house surgeon. Facial paralysis followed. In the next few days Dr. Duel tried to find the facial nerve as it emerged from the stylo-mastoid foramen, but could not. Searching in the neck wound the stump of the nerve was found just as it entered the parotid gland. The nerve had been severed at its entrance to the sterno-mastoid foramen.

The mastoid had been scraped away removing the nerve up to the bend; not being able to find the nerve in the bone he did a radical mastoid, locating the nerve in the anterior wall of the tympanum, and followed it down. It had been curetted away from the bone. There was a shortage of 27 mm. Thinking there would be very little chance for recovery of such a long graft in a suppurating wound, he decided to identify the stump by suturing a graft

of 27 mm. from Bell's nerve to the end near the parotid gland with black silk, thus locating it for future anastomosis if the graft failed. In three months there was a response to foradic current. All of the muscles of the face move. He believes that in three months more it will be impossible to tell which side was the operated one.

The most careful dissection, the most successful placement of a graft, may easily fail for want of meticulous care in the after treatment. Daily dressings are done, and may be done more often in the midst of suppuration.

Dangers that menace the life of a skin graft are: (1) The use of *any* antiseptic. (2) Bungling the dressing causing disturbance of the graft by ever so slight a manipulation before it is protected by a bed of healthy granulations. (3) Pus. (4) Blood clot.

The nerve should be compressed five to 10 mm. above and below the graft. The graft should be laid in position with great care that no bleeding shall prevent perfect apposition of its ends. A thin layer of dentist's gold should be laid over the whole length of the graft and decompressed facial segments. The wound should be left *wide open* and lightly dressed with small bits of sterile packing gauze wrung out of sterile N.S.S.—nothing else! At the daily dressings curiosity should be curbed to the point of refraining in looking at the graft by lifting the gold foil for several days. If frequent dressings have kept it free from pus, it should be found pink and healthy. On lifting the gold foil in another two weeks the nerve should be found embedded in a velvety layer of healthy granulations. When the whole wound looks h e a l t h y enough to warrant it—a plastic operation to close the wound may be done. Daily, gentle massage of the facial muscles and galvanic m a s s a g e once or twice daily, should be kept up until the muscles begin to respond to faradic stimulation. Let the emphasis be made again that there is no reason for delay should the facial paralysis immediately follow the mastoidectomy.

Dr. Duel—If the nerve is operated at once they can find the exact damage—if a definite injury is found graft will be more likely to succeed and will repair more quickly—the patient would have a "better deal" and the surgeon would sleep much better.

In the March issue of the Archives of Otolaryngology, Dr. Sterling Bunnell, of San Francisco, who is undoubtedly a plastic surgeon, discusses very thoroughly and extensively his work on surgical repair of the facial nerve. The rest of my discussion shall be from Dr. Bunnell's paper. He states: "Present indications are either to repair the facial nerve directly, by decompression, suture or free nerve graft, or, if the nerve is irreparable or the facial muscles have undergone degeneration, to perform a p l a s t i c reconstruction operation using muscle and fascia. He states the first successful suture of this nerve intratemporally was done by him in 1925.

His operative procedure is as follows: Through an incision excising the old mastoid scar and running well down the neck, paralleling the flexion crease, the facial nerve is first located as it emerges from the stylo-mastoid foramen. It will be found to be one inch deep and directly under the lobule of the ear. The nerve is uncovered from below upward, the mastoid process being chiseled away, and the nerve exposed in the fallopian canal until the lesion is located. Care is taken to preserve the external auditory meatus intact in order to maintain a clean field. The nerve will be found to be 7/8 of an inch deep in the bone. T h e r e f o r e, the bone should be chiseled away widely to afford space in which to work. The nerve is also exposed above the lesion as it lies in the fallopian canal and is uncovered downward to the lesion, where it will be found to terminate in a neuroma if it has been severed as long as three months. Both nerve ends are trimmed back boldly until g o o d a x o n bundles present.

If the gap between the nerve ends is not too great, namely, 16 mm. at the bend, or 23 mm. at the geniculate ganglion, rerouting of the nerve is resorted to instead of free grafting, because direct suturing of the nerve gives a somewhat better end result than does a graft. If the vaginal process and part of the tympanic plate of the temporal bone are removed, the nerve can be made to run straight from the parotid gland to the middle ear. One cm. of length

is thus gained. By freeing the nerve well into the parotid gland, two mm. more is gained, and by displacing the parotid gland another four mm. is gained. Thus, if the lesion is at the bend, 16 mm. can be gained by rerouting.

If the gap is too great to be overcome by rerouting, a free nerve graft is advisable. BUNNELL uses the sural nerve in the back of the calf. The nerve ends are accurately sutured together with four stitches of the first silk using the shortest curved atraumatic eye needles. Sufficient bone must be chiseled away to afford space for this difficult task. By a plastic maneuver, viable soft tissue should be laid over the nerve suture or graft to obliterate all dead space and to maintain the growing nerves surrounded by clear and vascular tissues, which will aid in the quality or degree of perfection of their union. DR. BUNNELL states he has repaired over one thousand peripheral nerves, and is convinced that the degree of eventful regeneration of the sutured nerve will be exactly in proportion to the accuracy of the union. As a rule, even the most accurately joined nerves regenerate not 100 per cent, but more nearly 80 per cent in degree of perfection. The sheath should be so accurately sewed that no axon escapes at the suture line and the amount of scar formation at the juncture should be minimal. The presence of hematoma, pus, or acute infection, greatly detracts from the accuracy of healing just as does merely laying the nerve ends together in contrast to accurate suturing. It is only the location of this nerve which makes the repair mechanically difficult. The repair of this nerve should be good for three reasons: (1). The lesion is well out in the periphery, where regeneration in the nervous system is best. (2) It is a purely motor nerve. (3). The nerve is small, which allows its free ends to maintain sufficient nourishment from lymph without central necrosis until new vasularity is established.

BUNNELL believes it inadvisable to attempt to unite a severed facial nerve at once after an operation for mastoiditis, as good healing cannot take place in an infected field. It is best to repair the nerve during the first year and preferably four months from the completion of healing, but even after four years considerable return of muscle function will occur. After ten years only a trace of movement can be expected.

CONCLUSION: In the treatment of facial palsy emotional expression should be restored by repairing the nerve itself intratemporally or extratemporally, instead of resorting to anastomosis with other nerves. If repair of the nerve is impossible, reconstruction of the face by a plastic operation involving the muscle and fascia is indicated. Decompression of the nerve often restores function. Direct union of severed ends by means of rerouting the nerve is preferable to the use of a free nerve graft when possible, because with it a more perfect degree of regeneration can be expected. Free nerve grafts should be used if the gap is too great for rerouting and will give good results. The degree of regeneration is in direct proportion to the accuracy of the union of the nerve ends. This argues for accurate, aseptic, surgical repair of the nerve in a clean field by suture at some time before more than a year has elapsed since the time of injury.

The Treatment of Carcinoma of the Cervix Uteri*

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More than two decades ago radiation therapy began making its contribution to the treatment of carcinoma of the cervix uteri. In the beginning the pioneering work was largely performed on cases that were quite hopeless from a surgical standpoint. It was soon discovered that symptoms were often ameliorated and life pro-

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longed. Occasionally these pioneers experienced the thrill of apparent cures in what were formerly hopeless cases. I recall with much pleasure seeing some of the early cases treated by Bailey and Janeway which showed no evidence of active malignancy three or four years after the treatment had been given.

In those days the gynecologist generally looked with a critical eye on this new form of therapy. When he referred what he sometimes called "border-line" cases for radiation treatment, one could feel sure that they would usually be considerably beyond the "border." However, as a group they proved very open-minded and rapidly changed to enthusiastic advocates of radiation treatment. In fact some[1] of them were among the first to accept it as the treatment of choice, even in the early cases.

Today in this c o u n t r y, and in many places abroad, the surgical treatment of cancer of the cervix, even though it seems to be well localized, is generally looked upon as a rather questionable procedure. Few surgeons have had sufficient experience to warrant their attempting the radical operation, while on the other hand, inadequate surgery is ineffective and often quite disastrous in its results. Even those few with extensive experience in radical hysterectomy have a mortality which most surgeons do not like to contemplate. Recently the great English surgeon, Bonney[2], admitted a percentage of 9.5 in his previous 200 operations. But to reach this point of perfection the surgeon has to pass through a period of much higher mortality, and he, who does the operation only occasionally, always f a c e s such a situation. What the average percentage figure is for all who perform this radical procedure, one can only guess. Suffice it is to say, it is high enough to tip the scales decidedly in favor of radiation therapy with its low mortality, its b e t t e r palliation in those cases which prove incurable, and its fair percentage of cures which is at least as good as those of surgery.

While the treatment of cervical carcinoma at present seems rightfully to be wholly a radiological problem, we are still far from the point where we can be content with our results. We must be open-minded and willing to accept whatever seems to improve the chances of cure. Perhaps in certain types of cases we may yet find that surgery can aid us. Above all we as radiologists must strive to keep our methods of treatment in step with scientific facts.

Early in the history of radiation therapy it was discovered that, following repeated non-lethal doses, epithelial tumors of the skin gradually became more and more resistant until finally no dose could be safely given which had much therapeutic effect. Later the same observation was made in cases of other tumors. The explanation formerly given was that the tumor cells themselves became radioresistant. However, experimental work[3] has not borne out these conclusions. Tumors have been rayed in vitro and in vivo with doses of X-ray just insufficient to destroy them, and then transferred to new hosts and the process repeated. Even though this procedure has been followed many times, these cancer cells showed no d i f f e r e n c e in the amount of the required lethal dose from that of untreated cancer cells of the same tumor strain.

On the other hand, if we turn our attention to the tumor bed, we find changes there after heavy radiation which offer a very logical explanation for the phenomenon. Within a short period after intensive dosage, microscopic examination reveals swelling of the walls of the arteries, especially the intima, and thrombosis of some of the terminal arterioles. In addition, edematous changes take place in the perivascular connective tissue. This is followed later by a devitalization of the connective tissue and permanent changes in the blood vessels so that they are incapable of reproducing the previous response. If radiation is again repeated, necrosis of the connective tissue is likely to result, while the tumor cells continue to live.

Since these observations indicate quite definitely that the effect of the radiation on the tumor bed is more important in the destruction of cancer than its direct action on the tumor cells, we must also question another oft quoted theory. The explanation frequently given, especially by the French school, for the advantages of protracted radiation over m a s s i v e dosage

given in a short period, is that by the former more or less continuous treatment the cancer cells are caught during mitosis when they are most susceptible to radiation. It would appear more logical to conclude that the protracted method of treatment owes its advantages to a more favorable reaction in the cancer bed which is accompanied by less damage to normal structures.

Unfortunately the fundamental principles and conceptions just enunciated are frequently i g n o r e d. All too often one hears of the radium treatment being applied in broken doses over a period of a few days and followed some weeks later by a c o u r s e of X-ray treatment. Perhaps after an interval of another few weeks a second course is given. Sometimes these two procedures are handled by two separate physicians, unassociated with each other, as if they produced different results rather than causing one and the same type of reaction. At the best, the fight against cancer is a hard struggle. Practically all of the chances of a cure are locked up in the first effort. If responsibility and treatments are divided, the results are bound to fall short of the attainable goal.

There are, of course, no generally accepted methods of radiation therapy. Leading radiologists do, however, all agree that the treatment should be continuous, somewhat protracted and very intensive. Naturally variations in individual cases call for some changes of procedure. Bearing in mind certain fundamental f a c t s, one should endeavor to follow as l o g i c a l a method as possible.

In the use of radium especially, we must always keep before our minds the inverse square law. If we do, we will realize that no worth while effect by this agent alone will be produced more than three to four cm. from its site of application. Even at this distance the reaction will often need to be enhanced by X-ray therapy, if the cancer is to be destroyed. Beyond this quite local area we must trust to the intensive X-ray therapy to stamp out the disease. That it can be quite effective in accomplishing this is well shown by results reported by Coutard[4] in far advanced cases.

When the cancer seems to be wholly confined to the cervix (Group I), should our procedure be fundamentally different than when it has reached the vaginal wall or begun to invade the parametrial tissues (Group II)? In my opinion it should not. Our grouping is necessarily inaccurate. Inspection and palpation reveal to us only those changes produced by large numbers of cancer cells. They tell us nothing about small groups of cells which may have permeated lymph channels and tissue spaces for some distances. If the growth was actually confined to the cervix in all Group I cases, then we should have few failures either by surgery or radiation. The fairly high percentage of such failures shows definitely that the growth had already spread in many of them into the realm of the Group II cases. It seems to me the conclusion is inescapable that all of what appear to be early cases should r e c e i v e thorough combined treatment.

Turning now to the very advanced Group III cases, we are faced with a much different situation. Here a large part of the growth is beyond the point where internal radium therapy can have any appreciable effect on it. If there is to be any chance for a cure (and some of these cases can be cured), or if we are to produce good palliation, our treatment must be applied so as to cause a heavy reaction throughout the whole of what we estimate to be the probable tumor area. This can only be brought about by Roentgen therapy. It is hard to conceive how increasing the reaction in a small localized area by the use of radium could contribute any aid to the final result. In fact, if too severe a local reaction were produced, it might interfere some with the intensive X-ray treatment which should be given.

Since a certain number of cures are obtained in Group III cases, it is quite evident that some of the cervical carcinomas are sufficiently radiosensitive that a reaction intensive enough to destroy them can be produced by the Roentgen rays alone. In a very few early cases I have given my full course of X-ray therapy before applying the radium. In some of these it has been quite interesting to watch the cervical growth shrink rather rapidly and finally change into a whitish slough, while the reaction of the normal part of the cer-

vix was only a moderate hyperemia — a beautiful example of selective action. One could not help but gain the impression that no radium was necessary. Nevertheless we have been afraid that there might be some groups of more resistant cancer cells lurking around the cervix which required that greater intensity of reaction which the radium would give. This suggests my conception of the treatment which may be stated as follows: By means of Roentgen therapy one can safely produce a moderately intensive reaction throughout the greater part of the pelvis. If the growth is sufficiently radiosensitive and is within the field radiated, it will be entirely destroyed. If it is too resistant for the above intensity of reaction, but is within the confines of the cervix or very closely adjacent, the increased intensity of the reaction brought about by the radium may still destroy it.

A moment ago I was speaking of giving the whole course of Roentgen radiation first. The method did not find special favor with me. In the first place it was discovered that in some cases there was a marked tendency of the X-ray therapy to bring about a closure of the uterine canal. If not discovered in time, this would prevent proper application of radium. In the second place with a stenosis of the canal perhaps in the offing, there was a natural tendency to wind up the radium phase of the treatment rather quickly. This is quite contrary to the principle of gradually increasing reaction followed in the Roentgen therapy. Accordingly I shortly returned to my previous method of giving occasional moderate doses of radium interspersed in the X-ray treatment. The time of these treatments is, of course, modified according to the general condition of the patient, her symptoms and the changes noted in the cervix during rather frequent examinations. If there is quite a little infection in the growth, the radium therapy is delayed somewhat in order to give the healing effects of the X-rays time to eradicate it.

As our experience broadens, we may find it also advisable to modify somewhat the method of treatment according to the type of growth found by microscopic examination. Most surely we should try to get a good biopsy specimen from every case treated, not so much for diagnosis as to increase our knowledge in the hope that it may aid the treatment. If one has had a fairly extensive experience in dealing with cervical cancer, he can make the diagnosis with absolute certainty in a large percentage of cases by simple inspection and palpation. This leads me to another rule which I feel advisable to follow. In the majority of cases the taking of a biopsy specimen c e r t a i n l y causes no harm, if treatment is instituted within a reasonable length of time. Occasionally, however, I have seen instances where such a procedure has been followed by l i g h t i n g up of a rather quiescent g r o w t h, which subsequently spread like the proverbial "wild fire." I am not aware of any such instances in cervical cancer. However, I have made it a rule in all cases where I think the diagnosis is sure, to wait ten days to two weeks after treatment is instituted before removing a specimen for microscopic study. At this time the radiation reaction is beginning to develop whereas the cancer cells are still unchanged. Perhaps it is unnecessary to do it this way, but at any rate I feel safer about it. In case the diagnosis is questionable, the biopsy and microscopic study should, of course, be made first.

Speaking of safeguards, I have learned what I believe is another important point from b i t t e r experience. The radiation treatment of cancer of the cervix does have its mortality. There will probably always be the possibility of lighting up some latent infection, but, judging from my observation, the chances of this can be distinctly lessened, if the patient is carefully watched and if the radiation reaction is not built up too rapidly. Some patients can tolerate a rather rapid administration of the treatment and respond as well as other cases where it is administered more slowly, but every now and then a case will appear which will cause one very much regret for having attempted it. This has driven me to the conclusion that there are no circumstances which justify haste in applying the treatment.

As brought out previously, the chances of a cure or of good palliation are almost always sealed in the first series of treatments. I do not make the rule absolute because there are occasional exceptions, even if an intensive protracted treatment has been applied the first time. A well advanced proven case of carcinoma of the lung which was first treated intensively by me nearly five years ago according to the protracted method well illustrates this. Because of return of symptoms I gave him another intensive protracted Roentgen treatment about a year later with most gratifying results. He is alive and well today. Judging from this case and others, it seems to me that after a period of many months some of the former reactivity of the tissue to radiation may return.

In case the initial radiation treatment was so inadequate that it did not exhaust the reactivity of the cancer bed, a second but thorough course of treatment has a good chance of some success, especially if the growth was quite radiosensitive at the start. A case like this fell in my hands about three years ago. She had been treated for carcinoma of the cervix in another city by a long series of interrupted X-ray and radium treatments. Because she was gradually getting worse she discontinued them. When she came to me she was losing weight rather rapidly, she had a copious foul-smelling discharge and was suffering much pain. Under a continuous intensive course of radiation therapy she rapidly improved. At her last visit a few months ago she seemed perfectly well and showed no evidence of a return of the trouble. This case well illustrates the contrast in effectiveness between repeated non-sterilizing irradiations and a continuous course of intensive therapy. Furthermore, one can hardly condemn too strongly the practice so commonly seen of physicians gambling with human life under a display of such inadequate knowledge.

Early in my work in radiation therapy I gained the impression that the intensity of the reaction produced was the main factor in determining the chances of a cure. Accordingly this idea has actuated me throughout my whole period of therapy of cancer of the cervix. My first cases treated more than a decade ago followed in most respects the same general principles as used today. Even then the treatments were continuous and quite intensive and protracted over a period of four or five weeks. As I reviewed these old cases recently, I found I had attained some fairly gratifying results which I believe are worth reporting.

Prior to five years ago I had treated a total of 34 cases. Many of these were so far advanced that there was no hope except of some palliation. Out of this whole group two have since died of intercurrent disease unrelated to their malignancy. They should not be considered in this statistical report. Of the remaining 32, 11 are still alive, one has been lost track of and the remainder have died of their malignancy. This figures to slightly over 34 per cent of five year cures for the entire group. I should, however, mention the fact that one of the 11 cases, treated almost ten years ago, has recently developed a carcinoma of the bladder which is thought to be primary there. Peculiarly, two of the cures are cervical stump (Group IV) cases, both of which were treated nearly 11 years ago. Only one Group IV case proved a failure. As might be expected the greater number of the cures came from Group I cases where there were seven successes and one probable failure.

One should not attempt to draw any definite conclusions from this small series. As it stands, it compares favorably with the reports from many of the large cancer centers. In the light of more knowledge and experience one naturally entertains the hope that the future holds in store further progress toward the goal of success.

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Carcinoma of the Cervix and Breast*
Prognosis and Preferable Therapy

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The average practitioner knows little as to what procedures the surgeon or radiologist performs in the treatment of these two types of carcinoma, comprising about 40 per cent of all cancers. The average practitioner usually is unable to give the patient or her family a proper prognosis of her condition either as to a five year cure or palliation of symptoms. The purpose of this paper is to give you a general outline of the preferable therapeutic procedures in the treatment of these two important types of carcinoma, and also to enable you to render a more correct prognosis to the patient and her family.

* * *

CARCINOMA OF THE CERVIX

The chief factor in determining the prognosis of this group of carcinomas is the extent of the local involvement, which is determined chiefly by clinical methods. A good classification of carcinoma of the cervix based on the extent of the lesions is offered by Dr. H. Schmitz of Chicago.

Group 1—Clearly localized carcinoma; beginning nodule.
Group 2—The doubtly localized carcinoma; beginning ulceration.
Group 3—Invading carcinoma; paracervical and parametrial involvement.
Group 4—Terminal carcinoma; fixation of the uterus, generalized pelvic metastasis, distant metastasis.

	Approximate number of cases in each group	Percentage 5 year cures
Group 1	5-10%	70-95%
Group 2	10-25%	30-50%
Group 3	75%	10-20%
Group 4		None

The patient who can be classified in group one and two should therefore be given a fairly good prognosis, if correct treatment is instituted. Patients in group three and four should be given a poor prognosis as to a five year cure.

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The long controversy regarding the relative merits of surgical and radiation treatment in carcinoma of the cervix has been fairly well settled in the last few years. Surgery is excellent for patients who are definitely in group one. Radium accomplishes the same results. Patients falling into groups three and four are, of course, inoperable. It is often impossible to determine by bimanual examination whether a patient is in group two or three. Radiation has therefore supplanted surgery in the treatment of almost all cases of carcinoma of the cervix.

It has been repeatedly shown by statistical studies and post-irradiation pathological studies of the cervix, that large cervical cancers can be completely destroyed by adequate radium therapy applied by any of the several methods. The problem therefore in the treatment of 75 per cent of all patients with cancer of the cervix (groups three and four), is to destroy the cancer cells outside the range of the radium action, i.e., the cancer cells in the parametrium or other pelvic organs. Deep X-ray applied externally to the pelvis combined with radium in and around the cervix is the best approach to this problem today. A patient in group three who has not been treated by the combination of X-ray and radium, has not received sufficient irradiation and therefore has been inadequately treated. The five year cures in the future will increase according to our ability to deliver lethal doses of X-ray to the cancer cells within the parametrium and pelvis.

GENERAL METHODS OF IRRADIATION

There are two schools on the preferable sequence of X-ray and radium irradiation:

1. X-ray series is given before the radium therapy and often again about two months after the radium treatment.

2. Radium therapy first, then X-ray about four to six weeks later.

The first procedure is used if there is some pelvic infection present. It is preferable in group three and four cases. The second procedure is preferable in group one and two and borderline group three cases.

Radium

There are two major types of technique of radium therapy to carcinoma of the cervix:

1. Large massive doses of radium given a few to 24 hours in one to several treatments.

2. The French or Regaurd technique whereby small doses of radium are given continuously from four to seven days. The principle of this technique is to irradiate the different cells during their mitotic stage.

The Regaurd technique was recommended by the Radium Society this past year, because fistulas, bowel adhesion and obstruction rarely occurred by this protracted irradiation. The Regaurd technique is the one I therefore use. Also, because I have but 50 Mg. of radium. The total dose, with the different techniques, varies from 2,000 to 4,000 mg/hr. around the cervix and 3,000 to 6,000 mg/hr. within the uterus. The dose depends on the extent of the carcinoma, size of the uterus, amount of radium used, type of filter, and whether it is given in massive or protracted doses. The distribution of the radium needles or tubes is likewise very important not only as to correct dosage but as to proper treatment. When radium therapy is given by means of tandem in the uterus for about 3,000 mg/hr., seven to 15 skin doses reach the serosa two cm. away, four to seven skin doses affect the parametrium and paracervical lesion three cm. away, and only one to four skin doses five cm. away. (Approximately 10 skin doses is required to destroy a squamous cell carcinoma.) But, when radium is applied around the cervix for 2,000 mg/hr. by means of a colpostat, combined with the uterine tandem in the above dose, 25 skin doses is given around the cervix, seven to 15 skin doses four cm. distant around lower half of the uterus, and one to five skin doses reaches the lateral pelvic wall[1].

X-Ray

X-ray irradiation in carcinoma of the cervix, and breast, is administered according to the protracted fractional method as advocated by Coutard; i.e., 150-200 r units to a portal every other day over a period of two to four weeks for a total of 1,200 to 2,500 r per portal. Usually, three to six portals are used in irradiating the pelvis. Only 30 to 40 per cent of dose delivered to the skin, actually reaches the tumor 10 cm. within the pelvis. By the use of multiple ports and cross-firing, a large dose can be delivered to the cancer growth within the pelvis.

* * *

II CARCINOMA OF THE BREAST

The numerous available statistics on the five year cures of cancer of the breast, treated by surgery alone, show a range from 15 to 52 per cent, or an average of 28 per cent cures. Such wide variations of percentage cures indicates that these excellent surgeons operated on patients in different clinical stages of the disease. When the operated cases are divided into two main groups: (1) carcinoma localized in the breast, and (2) extension of the cancer into the axilla, then a more correct evaluation of surgical procedures is obtained. The percentage of cures now varies from 50 to 80 per cent in the first group and 15 to 25 per cent in the second group. A proper classification of breast cancers is therefore necessary for a more correct prognosis and to better evaluate various therapeutic procedures. The classification offered by Doctor Portmann of the Cleveland Clinic, I believe is very practical for this purpose[2].

Group 1—(a) Tumor localized to the breast and movable.
(b) Skin not involved.
(c) Metastasis not present in the axillary lymph glands.

Group 2—(a) Tumor localized to the breast and moveable.
(b) Skin not affected (or only slightly edematous or ulcerated).
(c) Metastasis present in the axillary lymph glands but only few are involved.

Group 3—(a) Tumor diffusely involving the breast.
(b) Skin involved (edematous ulcerated), multiple nodules.
(c) Metastasis to numerous axillary glands, supraclavicular glands, distant metastasis.

In more than half of the cases, axillary

metastasis cannot be palpated. Groups one and two in the above classification therefore often cannot be differentiated without a pathological examination of the axillary contents. Only 50 per cent of all cases operated at the Cleveland Clinic were in groups one and two.

The patient that is definitely in group one is almost entirely a surgical problem, and the results, as stated, are very good. Radiation assumes a very minor role in these cases. Most of the deaths in this group are due to spread of the cancer cell to the lungs and abdomen through the back door before the mastectomy was performed.

The patients in group three are essentially a radiological problem. Palliation, cessation of growth and destruction of the glands and tumor, and often an attempt to make an inoperable case an operable one, are the objectives of radiation. Not one patient in this group who was operated at the Cleveland Clinic, survived five years without obvious evidence of the disease. It seems, from their statistics, that surgery actually does harm in these cases and shortens the life of the patient.

The evaluation of the correct therapeutic procedures in group two and borderline group three cases has been the big problem to the surgeon. Does irradiation increase his percentage of five year cures? Is irradiation of more value when given pre- or post-operatively, or when combined? Many of the statistical reports in the past comparing the results of surgery alone and surgery plus irradiation are not of true value, for these authors did not classify their cases in groups two or three. Also, many of these writers were unfamiliar with radiological procedures and could not correctly state how, when, and why irradiation was administered. Many of the patients were inoperable to start with and post-operative irradiation, of course, was given a black eye in these cases.

As mentioned above, the percentage five year cures by surgery alone in group two and borderline group three cases are very melancholy, about one in six surviving. The statistics in this same group when treated with surgery plus adequate post-operative irradiation show: (1) an increase in the five year cures varying from five to 25 per cent as compared to surgery alone; (2) a drop of local recurrences varying from five to 25 per cent to a minute fraction or no recurrences.

Surgery plus proper post-operative irradiation produces better results in group two than surgery alone, but the results still are poor. An attempt to improve the number of cures in this group has stimulated the surgeon and radiologist to try pre-operative irradiation. Small series of cases now being reported throughout the country are very encouraging and indicate that we are on the right track in the treatment of this group of cases.

Dr. F. Adair[3], of Memorial Hospital in New York City, has recently published an excellent paper on the value of pre-operative irradiation, employing doses of 1,800 to 2,400 r to each of three or four portals. The diagnosis in each case was proven by punch biopsy. Radical operation was performed six to eight weeks after irradiation was completed. In 70 per cent of his cases, there was a very definite shrinkage of the tumor mass. In 23 per cent of the cases, no evidence of carcinoma cells could be found on microscopic examination of the resected breast. This and other similar studies prove that irradiation alone can cure completely a certain percentage of breast cancers. This should convince many of the skeptical surgeons that X-ray is of definite value when applied properly.

Pre-operative irradiation has been belittled by many, because histological studies have shown that the majority of breast tumors are adeno-carcinoma, which are resistant to moderate doses of X-ray. But, Ewing, Cutler, and others have repeatedly shown that many sections in such tumors show very anaplastic cells, which are extremely responsive to moderate doses of X-ray. Again, most of these anaplastic cells are at the periphery of the breast tumor, where the blood supply is best, and therefore are readily destroyed by X-ray.

Pre-operative X-ray irradiation is therefore indicated: (1) to destroy the more sensitive cancer cells, (2) to confine the field of the cancer growth, and (3) to prevent surgical transplantation.

Pre-operative irradiation has been used for a long time in other types of cancer, as kidney tumors, cancer of the body of the uterus, cervical metastatic nodes, bone tumors, etc. Many surgeons object to pre-operative irradiation because of the delay in operation from four to eight weeks. But as Dr. Bloodgood once said, "The moment the X-ray begins, the moment the danger of spread ends."

General Methods of Irradiation

The Coutard technique as described under carcinoma of the cervix is used in the pre- and post-operative techniques.

The pre-operative irradiation is administered: (1) according to technique of Adair, as mentioned above, i.e., 1,800 to 2,000 r, operation two months later, (2) according to the technique of Phahler, Merrit, Christie, etc., employing a moderate dose, 900 to 1,200 r to three or four portals, operate two weeks later and further irradiation given three to six weeks after operation.

Radium packs to the chest has been used in larger clinics in place of the X-ray, but the method is impractical and the results are inferior to X-ray.

In patients under 35 years of age, sterilization by irradiation or surgery is recommended.

* * *

Conclusion

(1) Classifications of carcinoma of the cervix and breast, based on the clinical extent of these diseases, have been presented. The statistics on the five year cures of these cases in their respective groups were presented in order to emphasize the importance of grouping or classifying a patient, if a proper diagnosis is to be reached and the proper therapeutic procedure evaluated.

(2) Patients in group two and three with carcinoma of the cervix are best treated by the combination of radium therapy in and around the cervix and deep X-ray externally.

(3) In the treatment of carcinoma of the breast, group three cases should be carefully differentiated from group two; operation is to be avoided in the definite group three cases. The percentage five year cures by surgery alone in group two and borderline group three cases has been shown to be poor. Post-operative irradiation increases the percentage somewhat but the results still are unsatisfactory. Pre-operative irradiation in these groups of cases appears today to offer the greatest percentage of cures, which, I feel, will be verified in the next five year statistics.

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Cardio-Vascular Syphilis*

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In the discussion of a disease entity there seems to be three questions that need answering. How can the disease be prevented? If it occurs how can it be recognized? And when recognized what can we do about it?

Cardio-vascular syphilis is here taken to mean the invasion of the structures of the cardio-vascular system with Treponema Pallida and the physiological-pathological changes that follow such invasion or as a result of an invasion elsewhere in the body with secondary changes in the cardio-vascular system. When there is an invasion into the human body with this organ-

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ism and it becomes generalized it is reasonable to assume that along with the other organs that the heart and blood vessels are involved. It is then that cardio-vascular syphilis begins. For the sake of brevity and clarity let us divide the invasion into that of involvement of the myocardium and the aorta.

It has long been considered that myocardial involvement was quite rare, but the organisms have been found at post mortem examinations in young individuals with acquired syphilis without signs of cardio-vascular disease who died from other causes. Worthen and others contend that this invasion is a more common cause of heart failure than coronary or rheumatic heart disease. He demonstrates Treponema Pallida in almost all of his cases. There is another school who believe that the myocardial damage is due to interference with coronary circulation as a result of the involvement of the ostia of the coronary vessels as part of the pathological changes in the aorta. Both sides base their conclusions on the finding of fibroid and hyline scars on post mortem examinations. To one it means fibroblastic proliferation and scar formation as in any other syphlitic lesion and to the other myocardial infarction with necrosis, and scar formation. They are both probably right but the fact remains that myocardial damage does occur, that the process begins early and gradually progresses for many years without clinical manifestation.

There is an acute spyhilitic myocarditis that may occur at any time from one day to 40 years following the initial invasion. It may result in sudden death or it may start out as a severe attack and continue to grow worse. It is manifested clinically by marked dyspnea, cynosis, precardial distress and dilation of the heart and pathologically by yellow to gray areas, which are distinguished from infarcts by the presence of lymphocytes, plasma cells and interstitial edema.

Gummas do occur in the heart and are usually located in the upper posterior part of the intraventricular septum and hence interfere with the conduction apparatus, producing partial or complete a-v block, bundle branch block, Stokes Adams syndrome, or may similate a myocardial infarction of the posterior basal type.

In early syphilis the aorta is probably always involved. This simple aortitis begins at the commencement of the aorta and extends upward. This is influenced by the rich network of the lymphatics, and as they become less marked so does the degree of pathological changes due to spyhilis and so we find our most marked change in the ascending aorta, the arch, and the first part of the descending aorta and in that order. The invasion of the aorta is followed by healing and scar formation as in any other syphilitic lesion and results, in late syphilis, in the aorta becoming nodular or ridged, a sort of longitudinal folds, with a dilatation of the aorta. The pathological changes of simple aortitis do not produce symptoms, but the condition is apt to progress into aortic insufficiency or aortic aneurysm or both.

When the valve becomes involved it is the free edge which undergoes a proliferative valvulitis, this in turn is replaced by fibrous tissue which then contracts shortening the cusps and become incompetent. Adhesions do not occur and so the cusps do not adhere together to produce stenosis. However as the aortic ring dilates and the cusp margins being shortened by fibrous tisue are made taut a triangular opening is formed which is relatively stenotic and the blood flow past these taut crisp edges may produce sounds which heretofore were explained on a basis of a roughened aorta or stenotic valve which could not be demonstrated at post mortem.

If the pathological process of simple syphilitic aortitis should involve the media of the vessel with a resultant loss of the elastic tissue then aneurysm will result.

The most important factor in regards to the pathological changes is the time required for these processes to take place. It is one of the unsolved problems of medicine, why an organism remains in a tissue for 20 or more years with gradual progressive changes and produces no symptoms, and then suddenly causes great damage. That is the story of cardio-vascular syphilis. An indiscreet youth today contracts primary syphilis, today begins cardio-vascular syphilis and if he is an average

individual, between 20 and 25 years from now his cardio-vascular syphilis will be recognized and then as an average individual he will have two years to live. Needless to say the prevention of these manifestations is the recognization and cure of early syphilis.

Now to the second question. If the disease is not prevented how may it be recognized, and more important still how can it be recognized early in order that the grave consequences may be avoided? If we investigate the text books we find that we can divide the symptoms into three groups. Those that result from aortic valve disease with strain and cardiac failure. Those resulting from narrowing or closure of the mouths of the coronary arteries to cause myocardial infarction or angina pectoris. And those resulting from pressure from an aneurysm. These are all late, so late that when found the battle is almost over, hope almost gone. And even with these symptoms, signs may be entirely absent. One might write a thesis on these symptoms and their use in the diagnosis and differential diagnosis of these late manifestations of cardio-vascular syphilis but our problem is early diagnosis. Most patients who come to late cardio-vascular syphilis will give a history of having had earlier, maybe years earlier, two outstanding symptoms.

It is on these two symptoms that we base our hopes for early recognition of this serious condition. It is true that these two symptoms occur together, or separately in many other conditions and that a diagnosis of cardio-vascular syphilis cannot be made with them alone but in any patient of any age in which they occur one should investigate the possibility of early syphilis. These two symptoms are disturbances of respiration and substernal distress.

The dyspnea may occur in any form or to most any degree. It may be expressed as a shortness of breath which occurs following ordinary exercise. This is the earliest sign of myocardial weakness from any cause and hence may attract attention to the heart and then be dismissed as functional, psychic, neuro-circulatory asthemia because no other evidence can be found to support it. But more often it takes on the form of a paroxysmal nocturnal dyspnea, waking the patient from sound sleep, lasting for 20 to 30 minutes, may gradually subside but most often passes away suddenly. It is usually accompanied by fear of death and profuse sweating, and leaves the patient in a state of exhaustion. One patient may complain that only the top of the lungs can be used for breathing, another that it is difficult to expand the lungs, another of sighing, but almost all patients that come to late syphilis with cardio-vascular pathology will give a history of some disturbance of the respiratory mechanism.

This disturbance is not accompanied with pain as a rule, but about the time that it began the patient began to notice a substernal distress which may be expressed as a tightness in the upper chest, a band like constriction of the chest, a dull ache, or actual pain. It may be anginal in type, occuring in response to effort. It may occur at rest. May be spasmodic or continuous. May or may not radiate. Probably the most common history is that of a continuous aching pain or distress occuring under the upper half of the sternum, or in the back, radiating to the shoulders and arms and occuring without relationship to effort.

The one important thing is that any disturbance with respiration, associated with any discomfort of the upper chest in which there is any doubt as to the diagnosis should be investigated for early syphilis. The battle against late syphilis with its cardio-vascular manifestations can be won only by diagnosis and cure of early syphilis.

There are two schools of thought in regards to specific treatment of cardio-vascular syphilis. One group believes that arsenicals should never be used and the heavy metals but rarely as they are afraid of the too rapid destruction of the organisms with resolution of the inflammatory tissue with a resultant accident. The other believes in pushing the treatment in hopes of stopping the invasion. The more logical method is that in between as advocated by Stokes and others.

In treating cardio-vascular syphilis we must remember that we are dealing with a patient who has structural damage due to invasion with a foreign organism and that that damage will continue until the

invasion is conquered. We must also realize that this damage has brought about certain disturbances of function that will continue because of irreparable structural damage unless treated. We must therefore treat both conditions concurrently and according to indications as they arise.

The effect of the arsenicals on the heart is that of vagus stimulation or interference with the controlling mechanism of the heart and on the heart muscle itself interfering with muscle conduction and resulting in tachycardia or fibrilation, particularly of the ventricles. These reactions can be avoided by pre-courses of heavy metals and by guarded doses. In those cases presenting high grade myocardial damage, anginal attacks, those similating coronary occlusion with infarction and in the very old, arsenicals should not be used. In cases of hypertension or with renal insufficiency the arsenicals will be better tolerated than the heavy metals and in these the iodides deserve a high and intangible place. In those patients in which the arsphenamine can be used will have a longer life expectancy than those in which the heavy metals are used alone.

One observes in many cardio-vascular patients that proper response to usual treatment is not reached until anti-leutic treatment is instigated, while syphilitic patients will need rest and digatilis in myocardial failure, nitrites and the theophyllum compounds in anginal attacks, morphine and oxygen in coronary accidents, diuretics and other cardio-vascular drugs when indicated.

I would like to conclude with the warning and statement by Stokes, that "The high points of syphilis of the cardio-vascular system may be touched with three words: ubiquitous, insidious, disastrous."

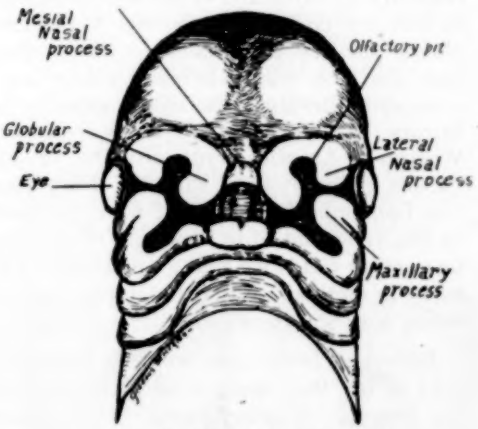
Congenital Deformities of the Mouth and Face*

GEORGE H. KIMBALL, M.D., F.A.C.S.
OKLAHOMA CITY, OKLAHOMA

For the past 10 years I have been interested in the examination and treatment of cases presenting various types of congenital deformities of the face and mouth.

As a medical student my curiosity was directed toward this subject by hearing it said that few men cared to operate these cases, and the fact that most men preferred not to do them at all. The hazards encountered apparently discouraged a great many surgeons from attempting this kind of work.

Congenital deformities and mal-formations of the mouth have occurred in the human race since time immemorial. Smith and Dawson in their work entitled "Egyptian Mummies" reported the finding of only one case of cleft palate and one case of club foot. Hippocrates does not mention either hare-lip or cleft palate in his writings. Celsus mentioned operations on lips, but probably referred to mutilated lips rather than the congenital type. Antyllos, a pioneer plastic surgeon of an-



Head of 28 day embryo (His)

FIGURE I

Shows the potential non-union which occurs in every case about the mouth and face.

*Read before the Section on Surgery, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1937.

FIGURE II
A rather large angioma of the upper lip associated with a complete cleft of the lip and palate. (The angioma was treated by Lain-Eastland clinic.)

cient times described operations for defects about the nose, ears, eyelids, and cheeks. Galen mentioned cleft lip and a method of repair. In 1500 Pierre Franco, a contemporary of Pare wrote about congenital split lip. Pare himself, the celebrated French surgeon, introduced the term (bec-de-lievre) or hare-lip.

Le Monnier in 1776 is said to have successfully operated and closed a cleft palate. In 1861 von Graefe, the founder of modern plastic surgery introduced to the profession the first comprehensive surgical method in closing clefts of the palate. In Europe, Diffenback and Roux, Stevens and Warren in America contributed to the advances in this field of surgery. Ferguson, von Langenback, and Wollf were pioneers in this field and so in this field of surgery as in other fields we find gradual improvement in methods so that today the work is fairly well standardized.

ETIOLOGY: In the past we have been content to say that there is no causative factor known. A great many theories have been offered such as the position of the tongue, systemic disease, malnutrition, maternal impression, etc. Recently (1932-1935) Fred Hale of Texas A.&M. has produced a great variety of congenital deformities in pigs by reducing the Vitamin A content in the diet before gestation and approximately a month after gestation. He was able to deplete the Vitamen A element in the diet in 160 to 190 days before the birth of the litter to a very low point, and then to withhold Vitamin A for approximately a month after the birth of the pigs. These litters were found to be born principally without eyes. Associated anomalies were hare-lips, cleft palates, sub-cutaneous cysts, misplaced kidneys, and accessory ears. This work then is the first definite experimental evidence that we have in the production of congenital anomalies from the maternal diet standpoint. (Maternal Vitamen A deficiency.)

EMBRYOLOGY: The embryo at a very early period does not have fusion of all parts which make up the face and mouth. Hence all embryos have a potential condition for development of non-union. Hence everyone is a potential subject.

FIGURE III
Enlarged accessory ear in a new born.

HEREDITY: In about 50 per cent of the cases we find that other members of the family either on the father's or the mother's side have some defect of mouth or face.

RACE: The negro race is particularly free from these congenital deformities of the face.

CLASSIFICATION OF DEFORMITIES

In 1,000 consecutive cases reported by Davis there were 948 which had a harelip or cleft palate or a combination of the two conditions. The other combinations included in this series are namely:

Rudimentary mandible.
Micro-glossia.
Atresia of nares-anterior.
Atresia of choanae.
Absence of naso-lacrimal ducts.
Colobomas extending into facial clefts.
Mucous pits in lower lips.
Hemangiomas of lip.

FIGURE IV (A)
AP view of lymphoma in a boy of 6. This had been operated twice. The treatment is radiation sometimes followed up by surgery.

FIGURE IV (B)
Lateral view, same case.

Hemangiomas of cheek.
Lymphangiomas of lip.
Dermoid cysts of dorsum nares.
Meningocele.
Microtia and atresia of exterior auditory canal.
Macrotia.
Ethmocephalus and cyclopia.
Ethmocephalus and anophthalmia.
Anophthalmia and atresia of choanae.
Hemi-cephalus, median.
Cleft lip, rudimentary nasal bones.
Temporomandibular fibrous ankylosis with incomplete fusion of mandibular and maxillary gingival margins.

So one can see that the surgical correction of the harelip and palate makes up the major problem in this series.

Time of Operation

I should like to say first that these cases are not emergency in nature. All of them must be thoroughly studied and adequately prepared before operation is performed. Since the new-born child does not stand surgery well, it is my opinion that it is best

FIGURE V (A)
Incomplete uni-lateral hare-lip.

FIGURE V (B)
Two weeks post-operative.

FIGURE VI (A)
Incomplete hare-lip in a boy of 13. Stopped school because of ridicule by associates.

FIGURE VI (B)
Final result following plastic surgery.

to wait until the child is at least three to six months of age before the lip is operated on. Also the child must be on the upgrade. He must be making a daily gain in weight. He must be free of all infections and he must be surgically a good risk.

The cleft palate is best repaired between the age of 18 months or two years on up to four or even six years of age.

Contra Indications to Operation

1. Mal-nutrition.
2. Anemia.
3. Infection, such as in ears, tonsils, or impetigo.
4. Any cardiac condition which will not permit general anesthesia.
5. An associated mal-formation or defect such as hydrocephalus, mental insufficiency, mental retardation.
6. Prolonged coagulation time.

The pediatrician is our best friend in aiding us to thoroughly prepare the child. One cannot appreciate the value of a well-trained man in this work until he has experienced his help.

FIGURE VII (A)
Complete cleft of palate, pre-operative view.

FIGURE VII (B)
Post-operative view. One operation.

Types of Operation

A. *Harelip*: Most harelip operations today are modifications of various contributions made by pioneers in this work. I believe the modified Mirault plan gives uniformly the best results in harelip operations. This operation allows a result that is functionally perfect; and from an appearance standpoint, the lip has normal contour, normal thickness, and mobility.

B. *Cleft Palate*: Most palates can be successfully closed by a modified Von Langenbeck operation. Modifications are used as suggested by Blair, Burdick, and Dorrance. In the extremely wide clefts it has been found advisable to operate in stages. This avoids the excessive sloughs that will be encountered if too much is done at once. The "push back" operation as outlined by Dorrance is quite valuable in the so-called congenital insufficiency cases. Brown has recently used the modified "push back" operation for the congenitally short, as well as the short immobile palates which followed surgery. Speech has been improved in these cases.

Principles of Operation

Lip

1. Complete anesthesia, preferably ether so that the anesthetic may be deepened or lightened and if necessary completely withdrawn.
2. Land marks should be placed before incisions are made.
3. Complete mobilization of lip.
4. Denudation of the margins of the cleft enough to allow the muscles to be united.
5. Reconstruction of the floor of the nose so as to prevent deformity of the nostril.
6. Careful skin closure so as to secure the minimum of scar.
7. Closure of mucous membrane in such a way as to obtain thickness of the lip.
8. Splint (Logan Bow).

Palate

1. Complete anesthesia, preferably ether.
2. Mobilization of flaps.
3. Preservation of blood supply.
4. Complete hemostasis.
5. Freshening of the medial borders of the cleft with relaxation.
6. Careful suture of the flaps without tension.

Post-Operative Care

Lip: Frequent cleansing adds much to the final result. The arms must be restrained. If infection develops early drainage should be established. Sedatives are indicated for a few days, feedings are continued as soon as tolerated.

Palate: Some sedation is helpful, arms are restrained, packs are removed at the end of 24 hours. Repacking is necessary in case of hemorrhage. The suture line is perhaps best kept clean by peroxide and saline. The child is given liquids for about 10 days.

As a rule the lip is operated first and thus pressure is brought to bear on the cleft palate. Occasionally in adults the palate is done first for the reason that there is more room to work, the lip being done separately.

Conclusions

These cases present an interesting study, both from the standpoint of etiology and as to their repair. The operative technique is fairly well standardized.

One should remember that *none of these operations are emergency in nature.* They should never be done until the case is thoroughly studied and carefully prepared.

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* * *

Discussion

Dr. John F. Burton, Oklahoma City: I rather hesitate to discuss this subject because it has been so well presented. I think this type of work is really highly specialized. There are three points I would

like to stress. First, this type of operation is not an emergency, it is elective. Second, the patient should be amply prepared before operation. Third, the work should be done by someone who is doing this line of work rather often.

About 50 per cent of the work we are now doing is re-doing cases that have been done elsewhere. I think that fact should be given rather serious thought.

I think that Dr. Kimball has prepared a very interesting paper on a common condition that we see throughout the state. Unfortunately, people are not in a position to pay for the work and for that reason it is quite often neglected.

Common Diseases of the Nails

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Due to the great frequency of nail disturbances the diseases of the nails have become of interest in all fields of medicine today. White[1] has given a fine summary of various nail conditions seen in dermatological practice. Pardo-Castello[2] has edited a new book on the subject. Still many of us are at a loss when presented with nail conditions as to whether the disease is local or constitutional.

A review of the anatomy of the normal nail must be made before a study of the disease processes is understood. The nails are similar to the epidermis in that they are formed by keratotic cells which retain fragments of their nuclei and are closely adherent. The nail substance is very similar to keratin and serves as a protection to the extremities of the toes and fingers.

The nail proper or nail plate may be divided into a distal portion which is smooth, shiny and pinkish in color, and the lanula or proximal end. The nail rests upon a layer of cuboidal basal cells called the matrix. It is the productive part of the nail and the cells grow distally, becoming cornified. The matrix can be seen through the proximal portion of the nail plate or the white, crescentic lanula. The nail bed lying under the nail plate is composed of an epithelial layer of cells similar to the matrix with which it is continuous. It does not take part in production of the nail plate, but plays a role in the nail nutrition. The nail plate and the nail bed apparently grow together from the matrix outward.

INFECTIONS OF THE NAIL

The first nail diseases to be discussed are those disturbances of the nails which are caused by infectious organisms which include the Staphylococcus and ringworm organisms. The most common of these is that discussed under the title of onychomycosis or ringworm of the nails. Pardo-Castello states that 18 per cent of all nail disturbances belong in this group.

Fungus diseases are becoming more common due to the popularity of the modern age for every kind of sport which has seemed to increase the amount of ringworm of the feet and body, and consequently of the nails. The nail is a common foci of infection and many times although the skin of the fingers and feet may be cleared of the infection the nails still harbor the vegetable parasite.

The ringworm organisms found to cause these infections are usually the dermatophytes, the yeast-like group of fungus or the monilia, sometimes the true yeasts or baker's yeasts, and in a limited number of cases favus has been cultured.

Pencillium and aspergillus have also been found to produce nail lesions.

The disease caused by the dermatophyte is characterized by first a slight scaling of the nail surface and is usually always dry. It is accompanied only rarely by a slight paronychial infection. There is then further development to a worm-eaten malformation and finally presents a peculiar

destruction affecting the entire thickness of the nail in striations resembling "split bamboo." The nail becomes brittle, discolored, grooved and pitted, while beneath the partially separated bed there is an accumulation of debris and horny material from which the organism usually can be found by microscopical examination in 15 to 20 per cent sodium hydroxide. This preparation must soak one to two hours to dissolve the nail substances. Contrary to belief, heating the slide does not hasten the process and may destroy the mycelium. The infection in the finger nails starts sometimes without any intercurring cutaneous involvement but with toenail involvement an infection usually can be found on the surrounding skin.

The infection usually involves one nail only at first and then later it seems to spread to the other nails. Except for monilia there is practically no pain involved in ringworm of the nails. Monilia infections as a rule are accompanied by paronychia and the infection is more of an exudative type. Often the paronychia precedes nail involvement. Kingery[3] & Thiennes have reported an epidemic of paronychia (caused by monilia) accompanied by dermatitis of the hands due to handling fresh fruits. Sutherland Campbell[4] also report a similar epidemic among orange workers.

In treatment a valuable preparation is Whitfield's ointment of double strength applied by a stiff brush following curettement and cutting of the nail. Sometimes a valuable agent is chrysarobin powder made into a paste with lysol to be applied to the infected nail only, the skin surface surrounding the nail protected by some bland salve. Tincture of iodine and mercuric tincture (Metaphen and Merthiolate) have been useful as an application in some instances.

Use of the X-ray is efficacious in all types of onychomycosis but it is of special value in monilia and yeast types of infection. Each nail is windowed off with lead and treated with separate exposures. Frequently surgical removal must be resorted to, although almost invariably there is a reinfection after removal.

Several authors have suggested that X-ray therapy following surgical removal be employed. Artificial nails can now be obtained for the more particular patients with malformed nails. These are sealed on the deformed nail, hiding all deformity.

Syphilis—Syphilitic involvement of the nails with atrophy or deformity has been noted by many observers, but there seems to be some question whether the atrophy is due to local disturbance caused by the spirochete, or whether the disturbances are due to lowered vitality generally, disturbing circulation and nutrition of the nail bed. Of course, chancres of the nail bed and periungual regions have been seen, especially in professional men. Stokes[5] states that changes in the nails are not particularly distinctive in syphilis.

Diagnosis of syphilis should be thought of, though, in nail dysfunctions associated with paronychia and dactylitis of the terminal phalanx.

Pardo-Castello describes two cases of secondary lesions on the body with superficial onychia affecting the outer surface of the nails. White of Chicago states that he has yet to see one case of nail disturbance due locally to the spirocheta pallida.

Psoriasis—Although this skin disease is usually on the glaborous skin it can involve the nails. Most cases are associated with skin lesions but there are frequently cases in which the nails alone are infected. Pardo-Castello finds 15 per cent of previous cases presenting nail lesions. Diagnosis is usually made by punctiform depressions, irregular transverse grooves, a brownish discoloration, hypertrophy of the free margins with tendency to erosion and distal nail plate destruction with irregular crustaceous deposits. Some nails with psoriasis may have only simple manifestations as dryness, loss of luster with fine desquamation. The nails should be scraped always and examination made for ringworm organisms. Cases of fungus infections of the nails of several years' duration in many instances have turned out to be psoriasis.

Treatment of the nails for psoriasis is very unsatisfactory and there is a temptation for over-treatment. A few X-ray treatments — two or three exposures of fractional doses windowed to each nail —

are worth a trial. Improvement may not take place until three to six weeks from the initial dose; otherwise, the therapy is the same in general as that of psoriasis of the skin. Strong keratolytic agents, chrysarobin in collodion five to 10 per cent have been recommended. Anthralin ointment has helped in one of our cases but it stains the nails a dark purple.

Eczema—In eczema of the nails the matrix and the periungal regions are attacked. Commonly known are nail changes due to occupational dermatoses and irritation from various irritants. R. Prosser White[6] in his textbook on "Occupational Diseases" gives a list of irritants to the nails and includes lime, plaster, caustic soda, etc. Cleveland White says "Cases have been observed in which there is no question of irritation of the nails due to nail polish and polish remover."

I have lately seen a dentist with squamous eczema of the hands and atrophic nails on the right hand with longitudinal ridges and undermining of the distal end; the cause is probably from medicines or chemicals used in dental work. Nail deformities are also seen in the so-called allergic eczemas. These apparently disappear as the dermatosis is cured. Chronic eczema of the feet of old people usually produces hypertrophied and distorted nails (onychogryphosis).

The clinical picture of eczema of the nails varies greatly. In occupational disturbances they may be simply stained yellowish-green or gray, or they may be completely destroyed. In most cases the adjacent skin is usually affected, being red and swollen, or dry and cracked with an eczematous paronychia.

The nails become malformed with irregular edges and depressions, the free margins cracked, thickened, everted and discolored. Sometimes longitudinal ridges are noted. Treatment is usually slow but successful. X-ray is the method of choice in the subacute and chronic stages. Change of occupation in many cases is necessary for complete cure.

Atrophy of the nails must always be ruled out in diagnosis of nail disturbances. These conditions may be congenital or acquired; the atrophy is more often symmetrical. Sometimes nail atrophy is associated with cases of alopecia areata. We see various other types such as paronychia, dryness and transverse line sometimes seen in lichen planus; leuconychia with white spots under the nail which is thought to be caused by the presence of air in the interstitial corneal spaces produced by local trauma or by presence of imperfectly cornified cells which causes the cells to lack cohesion. Ridging and furrowing with brittleness are noted in endocrine disturbances as myxedema, and where constitutional disorders are present. Tuberculosis has been found to produce acute paronychia with lymphangitis. One of the most common types is known as verruca necrogenica and has been contracted by autopsy attendants in careless handling of tuberculous material.

In chronic pulmonary tuberculosis the hippocratic nails are seen with clubbing of the fingers. The nails are enlarged and curve over the end of the finger as a cupulo.

We recently saw a severe arsphenamine dermatitis with high fever which caused a recession in the growth of the nail with transverse furrows across the nails, progresssing to undermining and nail destruction. The nail gradually grew distally as the patient recovered with new, well nail in its place.

Cleveland White has recognized nail disturbances due to lack of Vitamin B and D and improper usage of these vitamins. The nails show transverse depressions with longitudinal striations; in severe cases, nail destruction.

We have observed one case which we believed to be due to avitaminosis but were discouraged with the use of vitamin therapy. We have not seen nail disturbances in our cases of pellagra.

Tumors and Trauma — Various tumors can occur around the nails as elsewhere in the body. Malignancies, keloids, angiomas, melanotic Whitlows develop from collections of nevus cells in the nail bed, xanthomas and warts. Warts around the nails should be treated conservatively. Electrodiathermic methods sometimes leave bad scarring. They respond well sometimes

to X-ray therapy with bismuth injections and mercurial ointments.

Epithelioma may develop from the nail bed or the matrix. It is usually prickle cell in type and of malignant order. We have recorded no cases in our files.

Conclusion

1. Fungus diseases are the most common of nail disturbances.

2. Psoriasis, lichen planus and eczema sometimes attack the nail.

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The School-Child's Breakfast

Many a child is scolded for dullness when he should be treated for undernourishment. In hundreds of homes a "continental" breakfast of a roll and coffee is the rule. If, day after day, a child breaks the night's fast of 12 hours on this scant fare, small wonder that he is listless, nervous, or stupid at school. A happy solution to the problem is Pablum, Mead's Cereal cooked and dried. Six times richer than fluid milk in calcium, ten times higher than spinach in iron, and abundant in vitamins B and G, Pablum furnishes protective factors especially needed by the school-child. The ease with which Pablum can be prepared enlists the mother's co-operation in serving a nutritious breakfast. This palatable cereal requires no further cooking and can be prepared simply by adding milk or water of any desired temperature. Its nutritional value is attested in studies by Crimm et al. who found that tuberculous children receiving supplements of Pablum showed greater weight-gain, greater increase in hemoglobin, and higher serum-calcium values than a control group fed farina.

Mead Johnson & Company, Evansville, Indiana, will supply reprints on request of physicians.

Early Diagnosis Campaign

Next month, April, is the occasion of the nation-wide Early Diagnosis Campaign conducted by the tuberculosis associations of the United States. This is the 11th annual campaign. Wherever possible physicians should join in observance of this educational effort. Any sound program designed to better inform the public about disease is more than worth while; intelligent patients are the most satisfactory to manage.

It would be a good plan to feature a paper, or program, on tuberculosis at the county medical society session; physicians need to know more about its early diagnosis. With a better informed public they must be alert to meet the expectations of their patients.

The Oklahoma Tuberculosis and Health Association, 22 West Sixth street, Oklahoma City, has special literature for this campaign, and other up-to-date pamphlets and publications on tuberculosis; copies of these will be mailed anywhere on request.

Progress Report of Type Incidence of Pneumococcal Infections in Oklahoma.

This survey was started December 1, 1937. One hundred and forty-one registered hospitals, laboratories, sanatoriums and related institutions were contacted with 21 replies to date. Eleven institutions reported that they did no typing. We have records to date of 167 cases of pneumococcal infections, two of which on checking proved to be streptococcal pneumonia. In 74 cases the organisms were not typed. In 91 cases the types have been determined and are distributed as follows: Type I, 25 cases; Type II, 19 cases; Type III, 11 cases; Type IV, three cases; Type V, one case; Type VI, one case; Type VII, 18 cases; Type VIII, one case; Type IX, one case; Type XI, one case; Type XIV, two cases; Type XIX, two cases; Type XXI, two cases; Type XXII, two cases; Type XXXII, one case and one case of mixed infection of Types I and II.

The Bacteriology Department has determined the type in 31 cases, the others are from sources throughout the state.

We appreciate greatly the cooperation which the various hospitals, laboratories, and individual physicians have given thus far, and trust we will eventually hear from all of them. In our final report the record from each institution will appear separately in order to give due credit to all concerned.

The money for this project has been supplied from the fund for medical research given to the University of Oklahoma School of Medicine by the last legislature. This problem should be of interest to everyone throughout Oklahoma since the State Department of Public Health informs us that pneumonia has ranked second as the cause of death in the state for the past ten years.

Signed: H. D. MOON, Prof. of Bact.

Protamine Zinc Insulin Squibb

Physicians will be interested to know that Protamine Zinc Insulin Squibb is now available in two strengths, 10 cc. vials of 40 units per cc. and 10 cc. vials of 80 units per cc.

Protamine Zinc Insulin has been available in the 40-unit strength since February 1, 1937. It was felt, however, that a higher potency was also needed for the many diabetics who require large amounts of Insulin daily.

While the efficiency of the two strengths of Protamine Zinc Insulin may be identical, the transfer of a patient from one strength to the other should be made only under the careful supervision of a physician until more experience has been accumulated.

Protamine Zinc Insulin Squibb is marketed under license from the Insulin Committee, University of Toronto.

Spring Medico-Military Symposium

March 28th and 29th brings to the doctors of the Southwest another banner program — the Spring Medico-Military Symposium will be presented by the Kansas City Southwest Clinical Society in conjunction with the medical officers of the Seventh Corps Area in Kansas City, Missouri.

Other than the army and navy representatives, guest speakers will include Dr. J. Albert Key, professor of clinical orthopedic surgery, Washington University, and Dr. Ovid O. Meyer, associate professor of medicine, University of Wisconsin.

The medical profession of the southwest is invited to attend this two-day meeting. There will not be a registration fee and complimentary luncheon will be served each day to the registrants.

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Failure to receive The Journal should call for immediate notification of the Editor, McAlester Clinic, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes of addresses, births, deaths and weddings will be gratefully received.

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EDITORIAL

WE MUST ASSIST

The American Medical Association has undertaken, through the State and County Societies, a survey to obtain information as to medical needs and to formulate preferable procedures to supply these needs in accordance with established policies and local conditions.

A pamphlet has been distributed by the Bureau of Medical Economics of the American Medical Association and your officers have requested sufficient copies of these in order that one or two may be sent to the officers of each County Medical Society. This is the first time that organized medicine has assumed leadership in undertaking these studies and they must have the complete cooperation of the State and County Medical Societies in determining medical needs.

It will be well if each County Medical Society will have appointed a Committee on Economics and they will, by the means at their command, complete the survey in their respective counties; a report of the survey will be submitted to the Committee on Medical Economics of the State Association and they will compile a report for the American Medical Association.

Organized Medicine has seen the threat of socialization and this can only be avoided by these matters being adjusted by the doctors themselves. This present plan will place in our hands not only the information required as to medical needs but we can formulate the plan to meet these needs.

Let us do our share to keep the practice of medicine in the hands of the medical profession and avoid bureaucratic control from Washington.

—o—

HOSPITALIZATION FOR THE VETERAN

The Veterans Administration hospitalizes Veterans on submission of an application form, of which one page is devoted entirely to the medical findings of the local examining physician. The only exception to this is in case of emergency in which event the Veteran may be admitted by authority over the telephone. Everyone is interested in securing hospitalization for those Veterans who are in need of such hospitalization and who, under the Veterans Administration regulations, are unable to pay for same.

On the Veterans Administration Form P-10 the local physician is asked to state briefly the history of the veteran's physical condition. This history should give, as closely as possible, the approximate time the veteran first became aware of the condition and accurate history of previous, similar attacks.

The second section of the physician's portion of the application pertains to symptoms. This would include subjective findings—it being necessary that the veteran's word be taken for these conditions,

and in this portion of the application many "gold brickers" can be eliminated.

The third section pertains to physical findings and of course include the active objective symptoms and laboratory findings. In this portion also is given the local physician's diagnosis and while these would undoubtedly have to be tentative they should be made as accurately as possible.

The Veterans Administration, American Legion, and all good citizens would like to find some means of eliminating hospitalization of veterans actually not in need of such treatment, and this can be accomplished to a greater or lesser degree, in proportion to the completeness of the examination and report made by the local physician.

The physicians of Oklahoma can and will be of the utmost assistance in culling the wheat from the chaff. We should play no favorites in any instance in recommendation for hospitalization as it is the taxpayer's money that is being spent and we, as taxpayers, should try our best to protect our own money.

The Veterans Administration, the American Legion, and the good citizens of Oklahoma feel that they have the cooperation of the medical profession of the State. If the local physicians know and can be made to realize the importance of these examinations, unnecessary hospitalization can be avoided.

"POLITICS"

During the last session of the Legislature Organized Medicine in Oklahoma had some experience with politics and we have been thoroughly convinced that it will be much easier to select officers who will support the program of organized medicine than to convert them to our way of thinking after they have been elected.

The above remark has been the text of many speakers before various meetings of doctors in this State and we hope they have elaborated upon the subject sufficiently so that each doctor believes that the above statement is correct and believes it so thoroughly that he will take an active interest in the selection of our state officers in the coming primary.

Candidates for office, from Governor down, are announcing and starting their campaign and this is the time when County Medical Societies should pay their debts to the Senators and Representatives who supported our program, and see to it that those who place themselves before the coming primary and who opposed our program during the last session of the Legislature are defeated.

We have been in politics, we owe political debts and these debts should receive our earnest consideration, the same as a financial obligation, and if we do not pay off, our credit will be destroyed.

There are candidates who have already announced for governor, who have done everything possible to wreck organized medicine in this state. All doctors are familiar with their attitude toward development of medicine in Oklahoma. There is no reason why we should not have a commitment of the candidates before the primary, in order that we may know how best we can protect the health of the people of our State, as well as elevate the standard of the practice of medicine.

Now is the time for us to think clearly, investigate the candidates thoroughly and after this not only vote intelligently, but use our influence to bring about the nomination and election of officers who can best serve the State, protect the Medical School, all other medical institutions and the health of our people.

IMPORTANT REPORT

Report of Cancer Committee of Oklahoma State Medical Association and State Executive Committee of Women's Field Army.

The Women's Field Army is an organization of the Federated Women's Clubs and doctors, under medical control, for the dissemination of factual information about cancer. The National Federated Women's Clubs and the American Society for the Control of Cancer have formed the Women's Field Army, under the control of the latter. In Oklahoma its controlling body is the state executive committee of the Women's Field Army, composed of the state commander, Mrs. W. M. Van Divort of Nowata; the members of the cancer

committee of the State Medical Association—Dr. Wendell Long of Oklahoma City, Dr. Paul Champlin of Enid, Dr. Ralph McGill of Tulsa; the state chairman for the American Society for the Control of Cancer, Dr. E. S. Lain of Oklahoma City; and the State Public Health Officer, Dr. C. M. Pearce.

The control of all lay medical educational efforts must rest in a medical majority in order to avoid the pitfalls incident to faulty lay interpretation of medical speakers and information. There is such control in this organization both nationally and in the state.

In Oklahoma this control rests not only with doctors but principally in the appointed representatives of the State Medical Association, rather than in the government agencies (public health departments) or a small group of doctors. It is a direct challenge to the doctors of this state to demonstrate that they are able to carry out a program of medical education for the public with satisfaction to both public and themselves.

The success of this movement in Oklahoma depends on following certain fundamental principles and the cooperation of every doctor of the State Medical Association.

Organization

It is the general policy of your committee (State Executive Committee of Women's Field Army and Cancer Committee of State Medical Association) that each county medical society have control through its county cancer committee of all medical activities within its county. This holds even to support the withdrawal of the Women's Field Army from a county should the county medical society reject it.

A dual organization of State Federated Clubs and the State and County Medical Societies is a necessity to proper function.

There is an organization of the women under the able state commander, with a chairman for each of the nine districts and a county lieutenant for each county.

A cancer committee of three members must be appointed by each county medical society. In counties where this committee is not appointed, the secretary of the county society is now considered the chairman of that committee.

The County Executive Committee is composed of four members, the county lieutenant of the Women's Field Army and three members of the county cancer committee. This committee will have the responsibility for all medical activities in its county.

A working plan for organization of county executive committees will be sent each county before the publication of this report.

Speakers

All medical speeches *must* be by doctors.

Each county cancer committee will carefully form its own county speakers bureau from its own members.

The State Executive Committee has a tentative State Speakers Bureau of doctors selected by the Cancer Committee of the State Medical Association and the state chairman for the American Society for the Control of Cancer. Its members have reviewed the medical material to be used and the endorsed speakers policies.

Assignment of a speaker for each request from the women's organization *must* be made by the chairman of the county cancer committee. The only restriction upon the county in this assignment is that any speaker from outside the county *must* be chosen from the approved list of speakers of the State Executive Committee. A speaker outside the county can be obtained through the Oklahoma City office, Medical Arts Building, Oklahoma City, in charge of your committee's chairman.

There should be reasonable uniformity of medical information. The basis for every speech should rest on the approved material produced and furnished by the American Society for the Control of Cancer. It should be carefully reviewed by each speaker in order to obtain facts rather than opinions.

This material includes three film strips and projector, available to county cancer committees and members of the State Speakers Bureau by writing the Oklahoma City office. Each speaker on county and state speakers bureau will be supplied a "Speakers Compend" (general informa-

tion). This medical material will be supplied *doctors only.*

Pamphlets for the public, also produced and supplied by the American Society for the Control of Cancer, will be given each person in each audience.

Speakers' Policies

The success of the Women's Field Army in Oklahoma depends upon the highest ethical conduct of those who speak. They must remember that they represent the entire profession by their speech and conduct.

(1) The *family doctor* must be protected and considered basic in all such situations as requests for consultation, examination, and information about cancer specialists. The family doctor is best able to supply this information to his patients and if he does not feel he has sufficient information, he can easily obtain it.

(2) Information about treatment should be very general, emphasizing that only surgery, radium and X-ray are recognized, importance of avoiding all quacks, uninvestigated lay persons who advertise, etc.

(3) Giving only known facts and admitting when facts unknown.

(4) No discussion of theories.

(5) Use of as few technical terms as possible.

(6) Avoidance of expressing individual opinion, sticking to supplied film strips and facts in compend as closely as possible.

(7) Maintainance of high ethical conduct by all speakers.

Why Doctors Should Support Women's Field Army

(1) This organization is medically controlled and in Oklahoma control rests in representatives of the State Medical Association.

(2) Lay fear and cancerphobia is largely based on ignorance of facts and articles published by laymen. It can be best counteracted by factual medical information.

(3) The State Executive Committee of the Women's Field Army is making every effort to establish and maintain sound fundamental policies, which are essential.

(4) The women's organization will have an enlistment campaign in April or May when each member enrolled will pay one dollar or more. Therefore, the women will pay for the supplies and organization and all we doctors will supply is the effort. (Incidentally, no member of the Women's Field Army in Oklahoma receives any salary for his or her work.)

(5) It is an opportunity to prove to the public that organized medicine can ably supply the necessary medical information they desire.

State Executive Committee of Women's Field Army	State Medical Association Cancer Committee	Wendell Long, Chm.
		Paul Champlin
		Ralph McGill
		Mrs. W. M. Van Divort
		E. S. Lain
		C. M. Pearce

THE GENERAL PLAN OF POST-GRADUATE INSTRUCTION
Sponsored By The OKLAHOMA STATE MEDICAL ASSOCIATION

The Instructor

Your state committee on post-graduate medical teaching of the Oklahoma State Medical Association was fortunate in securing the services of Dr. Edward N. Smith as instructor of our obstetrical program. The general outline of Dr. Smith's ten lectures and clinics is attached for your information.

This course of modern methods in obstetrics is being offered by giving one lecture of approximately one hour in length, followed by a clinic of one hour, making a total of two hours of instruction once a week for ten weeks (ordinarily, lectures will not be given on Saturdays or Sundays). It will require, as will be seen, two and a half months for the complete course in each of the centers. The course will be offered in county-seat towns or centers where physicians customarily meet for county medical meetings. This, however, is not always a necessary rule.

It is proposed to open the course in the cities in northeastern Oklahoma, and our field representative will, in the near future, be in your community to discuss the most logical centers with you. Between lectures, as far as his time for travel will permit, Dr. Smith will be available for free consultation with doctors registered in the

course. He will also be available for talks before local civic clubs, P.T.A., and Women's Federation Clubs. You can readily see from this that physicians will have the advantage of discussing the theories advanced in the lectures over their cases in actual practice.

Many doctors appreciate this post-graduate instruction offered under this plan, and receive more direct benefit than if the course were presented on a larger plan. National meetings with national clinics do not give individual instruction afforded under the plan sponsored by our State Medical Association. This does not minimize the value of our national medical meetings, but we raise this point to emphasize the individual instruction to be received on a circuit plan of this type.

Some years ago, the Oklahoma medical profession was privileged to have many valuable courses presented on a circuit plan. That plan, of course, was abolished as most of you remember. In the past, when we sponsored this circuit medical and surgical post-graduate instruction, you recall that you were asked to pay a fee of from $30 to $35 for each course of some nine lectures, and no consultation privileges included. Under the present plan, the State Medical Association, with the financial assistance of the Commonwealth Fund and the State Health Department, is offering ten lectures giving the doctors consultation privileges with the instructor for the small fee of $5. As stated above, this is made possible by reason of funds your committee has assembled from endowment resources. We wish we could offer this course to you without even the minimum $5 fee, but the fee will be needed to assist in financing the general plans of this ten weeks' circuit in your local community.

Qualifications of Medical Instructor and Outline of Course

Dr. Edward N. Smith has been selected by your committee as the medical instructor in the obstetrical program. Dr. Smith is highly qualified to handle this work. He is a graduate of Washington State College, and of the University of Pennsylvania School of Medicine. He has had an excellent background of experience including rotating internship, Camden, New Jersey, several residences in obstetrics and gynecology including Cornell Medical Center, New York City; Margaret Hague Maternity Hospital, Jersey City, New Jersey; Columbia Medical Center, Sloane Hospital; New York Post-Graduate Hospital, and is a diplomate of the American Board of Obstetrics and Gynecology. He is also the recipient of the Degree of Med. D. Sc. in Obstetrics and Gynecology, Columbia University.

In addition to Dr. Smith's very thorough post-graduate training in obstetrics, he did general practice in Livingston County, New York, for four years following his graduation, serving also as County Health Officer and secretary of the local medical society.

In view of his broad experience as a general practitioner and teacher, he is cognizant of their problems and particularly adapted for his present position.

Dr. Smith is very pleasing of personality, and has the ability of conveying his world of information to others in a manner easily understood.

The following is the tentative outline of the course which Dr. Smith will present:

1. Sterility and Fertility.
   Contraceptive and conceptive advice.
2. History and Examination.
   Pelvic measurement. Practical office, laboratory and instrumental aids.
3. Normal and abnormal pregnancy, by trimesters.
4. Normal labor and delivery.
5. Operative obstetrics.
6. Obstetrical emergencies and danger signs.
7. Dystocias. Breech, transverse and compound presentations. Elderly primigravida.
8. Normal and abnormal puerperium.
   Retroversion and pessaries. Lacerations.
9. Care of infant.
   Prematurity. Follow-up.
10. Medical and surgical complications.

Editorial Notes—Personal and General

We recently received an announcement to the effect that the Medical Arts Laboratory of Oklahoma City had sold its assets to Dr. W. F. Keller, director and principal stock-holder. This change was made to conform to the requirements of the Oklahoma Basic Science Law.

The Profession has always considered this laboratory and Dr. Keller as synonymous, and we are glad to hear that he is now sole owner.

DR. and MRS. E. T. ROBINSON, Cleveland, vacationed in Texas and Mexico City for three weeks in January and February.

DR. JOE C. RUDE, formerly located at 525 E. 68th St., New York City, The New York Hospital, announces his change of address to the Collis P. Huntington Memorial Hospital, Harvard Medical School at Boston.

DR. CHARLES K. MILLS, McAlester Clinic, McAlester, Oklahoma, is visiting Clinics in California.

DR. L. C. KUYRKENDALL, Councilor, McAlester, was guest speaker of LeFlore County Medical Society at their meeting in Poteau in February.

DR. L. S. WILLOUR, McAlester, spent a week in March at the Willis C. Campbell Clinic in Memphis.

The medical staff of the Menninger Clinic will conduct its fourth annual Postgraduate Course on "Neuropsychiatry in General Practice," April 25 to 30, inclusive, at the Menninger Clinic, Topeka, Kansas. The course this year will include a brief introduction to the fields of neurology and psychiatry and a specific application of this knowledge to the large group of cases of psychoneuroses, psychoses and psychogenic and neurological disorders which every physician meets in his daily practice. Suggestions made by those who took the course last year have been embodied in this year's program in order to make it applicable to the most common practical problems of the physician.

As in previous years, several guest speakers, prominent in the fields of neurology and psychiatry, will appear at the evening sessions of the course.

News of the County Medical Societies

CARTER County Medical Society reports the following program of the joint meeting with the Oklahoma Regional Fracture Committee, at Ardmore January 14th:

An afternoon session at 2:30 p.m., "Pneumonia," Dr. G. E. Johnson, Ardmore, Okla.; "Smith Peterson Fixation of Fracture of the Neck of the Femur, with Moving Pictures," Dr. Earl D. McBride, Oklahoma City; "Reconstruction Operation of the Hip, with Moving Pictures," Dr. Paul C. Colonna, Oklahoma City; "Fractures of the Spine, with Moving Pictures," Dr. E. Payne Palmer, Board of Regents of American College of Surgeons, Phoenix, Arizona; "Demonstration of Airplane Ambulance," Mr. Sidney Maxfield, Oklahoma City.

Dinner at 6:00 p.m. at Hotel Ardmore.

The night program, open to the public, at 7:30 p.m., Convention Hall. "Invocation," Rev. George H. Quarterman; "American College of Surgeons Program for the Treatment of Fractures," Dr. Earl D. McBride; "The First Aid Care of the Injured Child," Dr. Paul Colonna; "First Aid in Fracture Work," Dr. E. Payne Palmer; "Presentation of Emergency Arm and Leg Splints to Ambulance Drivers of Carter County," by Dr. Walter Hardy.

PITTSBURG County Medical Society met February 18th at the Aldridge Hotel, McAlester, and heard papers on "Diagnosis of Cancer" and "Ectopic Pregnancy," by Drs. Hugh Jeter and Joseph W. Kelso, respectively, both of Oklahoma City.

OKMULGEE-OKFUSKEE County Medical Societies met February 28, 1938, for a joint meeting and dinner. The speakers were: Dr. C. L. Magruder, Superintendent of the Veterans Hospital, Muskogee, who spoke on the relationships between the veteran, the general practitioner and the Facility service. Dr. I. W. Bollinger, Henryetta, read a paper on "Compression Fractures of the Back" and showed X-ray pictures of an interesting series of cases.

WOODWARD County Medical Society met February 8th, as guests of the physicians of Woodward. Following dinner at 7:30 papers were read by Drs. Basil Hayes, Oklahoma City, on "Phases of Nephritis"; and C. J. Fishman, Oklahoma City, on "Socialized Medicine." The next meeting will be held at Laverne, Oklahoma.

POTTAWATOMIE County Medical Society elected the following ofifcers for 1938 at their meeting in February: President, Dr. E. Eugene Rice; vice-president, Dr. Horton E. Hughes; secretary-treasurer, Dr. Clinton Gallaher, all of Shawnee.

RESOLUTIONS

Report of Committee on Resolutions

Cleveland County Medical Society., February 10, 1938

Dr. G. W. Wiley

WHEREAS our friend and esteemed co-worker, Dr. G. W. Wiley has been called by the Great Physician, and

WHEREAS for many years he was a prominent and active member of our Society, and our profession, and

WHEREAS his professional attainments, and sterling qualities were known and admired both within and without the profession,

Therefore, Be It Resolved, by the Cleveland County Medical Society, that we record our sadness in his untimely passing, holding in memory his splendid skill and personality as a professional man, a loving and generous husband and father, an active leader, a citizen above reproach, and withal, kindly and generous, and

Be It Further Resolved, That a copy of these resolutions be spread upon the Minutes of the Cleveland County Medical Society, and that a copy be sent to the members of the family, and that official copies be sent to the Journal of the Oklahoma Medical Association, and the Journal of the American Medical Association.

Respectfully submitted,

Dr. E. F. Stephens,
Dr. D. G. Willard,
Dr. M. M. Wickham,
Committee on Resolutions.

ABSTRACTS : REVIEWS : COMMENTS *and* CORRESPONDENCE

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Building, Oklahoma City

Results of Radiation Therapy for Carcinoma of the Uterus. Ward and Sackett. The Journal of the American Medical Association, January 29, 1938, Page 323.

This is an excellent review of the work done at the Woman's Hospital. The following quoted summary contains the important results and the opinions of the authors.

"During the 18 years that we have been treating carcinoma of the cervix with radium at the Woman's Hospital as part of a regular gynecologic service, we have salvaged for five years 27.4 per cent of the 595 patients seen and 28.5 per cent of the patients treated. In the cases of early carcinoma, in which the disease was limited to the cervix, we saved 56.2 per cent, showing the importance of treating the disease in the beginning stages.

"For the 359 patients seen over a period of ten years the absolute cure rate was 17.3 per cent and the relative rate was 18 per cent. In spite of lowered life expectancy, 73 per cent of those who survived five years lived ten years or longer.

"We believe that the extent of the disease is of greater importance than the type of cell in determining the probability of cure. In our series early carcinoma had twice the curability of advanced carcinoma, irrespective of the maturity of the cells and of whether they were of the squamous or adenocarcinomatous type.

"The highest incidence of carcinoma of the stump after supravaginal hysterectomy points to the desirability of doing a panhysterectomy whenever possible if no added risk is involved.

"In 108 cases of carcinoma of the fundus an absolute five year cure rate of 42.6 per cent was obtained and a relative rate of 45.5 per cent. We believe that a panhysterectomy is the most essential part of the treatment of carcinoma of the corpus and should be employed whenever possible. Combined radiotherapy and hysterectomy seems to us the most promising method. However, surgical intervention is contraindicated in nearly 50 per cent of the cases, and radiotherapy is our only resource for this group.

"There is a great need for comparative studies of the improvement obtained in combining high voltage roentgen therapy with radium therapy, and the conclusions should be based on the absolute survival rates over five and ten year periods and not on generalized clinical impressions. With the adoption of the Coutard fractional technic definite improvement may be hoped for.

"Finally, a survey of the six statistical reports of our results shows an improvement in the relative five year cure rates we have obtained as follows: 1925, 23.6 per cent; 1928, 23.1 per cent; 1930, 25.5 per cent; 1932, 24.8 per cent; 1934, 25.28 per cent, and 1937, 28.5 per cent."

There are excellent tables from which the statistical summary was obtained.

Comment: The results given in this article are very good. They emphasize the tremendous advantage of patients with carcinoma of the cervix receiving treatment while the disease is still limited to the cervix. They also show a gradual but steady improvement in the succeeding years in which the treatment has been employed.

The opinions of the authors relative to the importance of the extent of the disease and the type of cell in determining the probability of cure are entirely sound and generally accepted.

Because of the high incidence of carcinoma of the stump after supravaginal hysterectomy in their series, they have raised the question as to the advantage of complete hysterectomy with the removal of the cervix also as against supravaginal hysterectomy. It is generally agreed, in patients where the cervix is sound, that complete hysterectomy is desirable only if the operative mortality risk is less than the possible incidence of malignancy. Judging from statistical reports, the average incidence of carcinoma of the stump after supravaginal hysterectomy is about two per cent. It, therefore, becomes an individual problem for the surgeon to determine whether or not the mortality risk in each individual patient will be increased greater than two per cent by doing the complete hysterectomy rather than the supravaginal hysterectomy.

Wendell Long, M.D.

Notes on Cutaneous Healing in Wounds. J. Herbert Conway. Surgery, Gynecology and Obstetrics, February, 1938, Page 140.

In focusing its attention on the more serious problems of morbidity, mortality, and functional results, the surgical world has somewhat neglected the subject of the healing of the skin in clean incised wounds.

The author of this paper has observed a great variation in the degrees of fibroblastic response in healing by first intention while making post-operative examinations at the New York hospital.

He points out that the purpose of his paper is to show that certain details in the technique of surgical incision and suture have a direct effect upon the degree of fibroblastic response in a clean incised wound and also upon the ultimate cosmetic result. This observation is based on the appearance of scars, photographed one to three years after operation, and consideration of the ultimate result in relation to the variations in the surgical technique employed.

Numerous investigators have shown that a healing wound undergoes a latent or quiescent period which ends abruptly and is followed by a period of contraction. It has been demonstrated that the tensile strength of a healing wound depends upon the firmness of fibroblastic response. The maximal strength of the wound, according to experimental work on animals, is attained in from 10 to 14 days. It is well known that the rate of cicatrization as well as the extent of fibroblastic response varies in

different individuals. Furthermore, these variations may be influenced by alteration of certain external factors which are under the control of the surgeon during the incision, suture, and subsequent care of the wound.

He is convinced of the following: "In order to promote ideal cutaneous healing of wounds and minimal cicatrization the following points in the technique and suture of clean surgical wounds are emphasized: the importance of placing the long axis of an incision parallel to Langer's lines of elasticity of the skin whenever possible; attention to the technique of incision so that the incision into the skin is not beveled; adequate undercutting of the skin and subcutaneous tissue flaps so that tension on the cutaneous line of suture is minimized; the use of silk legatures and sutures; and the use of fine arterial silk for approximation of the edges of the skin in the suture of wounds of the face."

LeRoy D. Long, M.D.

An Inexhausible Source of Blood for Transfusion and Its Preservation. Goodall, Anderson, Altimas and MacPhail. Surgery, Gynecology and Obstetrics, February, 1938, Page 176.

The authors believe they have found a safe, constant, efficient and lucrative source of blood for transfusion.

They became convinced that it was unnecessary to waste fetal blood from the placenta. They have established means to preserve this lost blood.

After experimentation they determined that the preservative proposed by the Moscow Institute of Haematology was the best available. The formula for this preparation is given.

A simple means of collecting the blood without contamination was established and considerable study was given to determining best atmosphere for conserving the blood in its freshness. Blood grouping and Wasserman reactions received due consideration.

They believe that the result of their work has been to provide an inexhaustible source of blood for transfusion and to preserve the blood at a minimum of cost and in a condition suitable for a transfusion medium for at least 60 days.

The technique used collecting the blood is extremely simple and blood is always available when it is needed for transfusion. An average of about 125 cubic centimeters of fetal blood is collected from each obstetrical patient.

The details of technique for preservation of the blood in an ice box at a temperature between 33 and 38 degrees Fahrenheit are given.

There are certain conditions which become axiomatic as regards mother, child, and accidents of labor. Blood of the placenta will, of course, not be taken in cases of obvious transmissible disease in either mother or child. Eclampsia is not a contra-indication, however. Blood will not be taken in cases in which the membranes have ruptured for more than 48 hours before delivery, nor in cases of definite prematurity. In cases of marked asphyxia pallida, the amount of blood in the placenta is so small as to make it worthless.

Babies at full term have a fixed blood group. Consequently, the groups of donors of placental blood are relatively numerically the same as in the recipients. Major reactions are all that are necessary in cross-matching. Cultures of the preserved blood are unnecessary because, at the low temperature for preservation, contamination, if present, could not propagate, and consequently would be so attenuated as to be innocuous. There occasionally occurs hemolysis which does not seem to cause any difficulty. It would seem that the hemolysin is in infinitesimally small quantity and is inoperative in the recipient. This subject is under further study.

Fetal blood, as regards cellular content, contains quantitatively approximately 7,000,000 red blood cells to 4,500,000 of the adult. Its cellular strength, therefore, is about 150 per cent that of the adult. Less fetal blood is therefore required. Every normal child at birth has therefore a well marked polycythemia. After birth, when the lungs become operative, the excess of red blood cells becomes unnecessary. This explanation is advanced to meet the argument that in taking the blood from the placenta, one is depriving the newborn of its rightful due, and that one should wait until the contractions of the uterus have squeezed some of the placental blood into the fetal circulation.

Fetal blood contains from 20 to 35 per cent more coagulation power than that of adult blood. From the point of view of transfusion, this is an advantage in hemorrhagic cases, and it does not appear a contra-indication of septic thrombophlebitis.

Preserved blood has many advantages over fresh blood. In the first place, food and other extraneous allergic reactions are eliminated. It is now a standing rule that, when possible, donors should not be used for some hours after ingestion of food. This is to obviate food allergic reactions. In preserved blood, autodigestion occurs and allergic reactions do not occur after 48 hours of preservation.

The author states that they have done many transfusions with fetal blood without a single untoward reaction, nor a single rise of temperature, even to a fraction of a degree, attributable to the transfusion. Before transfusion the fetal blood is heated and strained through gauze. Two or more fetal bloods may be given simultaneously, if necessary, after separate matching.

LeRoy D. Long, M.D.

PREGNANCY TESTS

The Aschheim-Zondek pregnancy test, using mice, later modified by Friedmann, using rabbits, has proven itself a reliable test for pregnancy with an established accuracy of about 95 per cent. However, it is time consuming, relatively expensive, and requires meticulous care of the animals employed.

The following four articles deal with the application of two pregnancy tests which were devised to provide simpler, quicker, and more economical tests for pregnancy.

Visscher-Bowman Pregnancy Tests (Chemical).

This is a chemical test devised by Visscher and Bowman, based upon presence of gonadotropic hormones in the urine of pregnant women. In the test 1 c.c. of urine is employed and to it are added reagents listed in the next two articles. The reading for the test depends upon the color and the precipitate produced.

The Chemical Pregnancy Test of Visscher and Bowman. By Messinger, Presberg, Fellows. American Journal of Obstetrics & Gynecology, February, 1938.

These authors examined 187 urines by the technic of Visscher & Bowman for the determination of pregnancy, finding 69.5 per cent agreeing with the clinical diagnosis.

The chemical test agreed with the Friedmann modification of the Aschheim-Zondek test in 72.5 per cent of 69 cases.

"A russet color and flocculent precipitate could not be obtained with histidine, creatine, glucose, lactose, or galactose, which indicates that these substances are not responsible for the reaction.

"A russet color and a flocculent precipitate should be present before a test be considered positive.

"The titration method described by Visscher and Bowman in their original article could not be confirmed."

Results with the Visscher-Bowman Pregnancy Test. By Dunn and Northway. American Journal of Obstetrics & Gynecology, February, 1938, Page 298.

The conclusions drawn by these authors and their summary concisely state their experience and are therefore quoted.

"Our results show a higher percentage of error than that recorded by other workers. Elimination of urines of low specific gravity and those containing undesirable catabolic products might better our results. In the suspected pregnancies, where these elements do not come into play, our findings were 87.6 per cent correct, the highest percentage of accuracy we found in any group. Contrasted with this, the fewest number of correct results (54.8 per cent) occurred in urines of nonpregnant febrile patients.

"We must conclude from our results, as well as from the results of other investigators, that the Visscher-Bowman test for pregnancy is, as yet, not sufficiently reliable to supplant the biologic methods now in use. A modification of the technique, aiming at the elimination of the sources of error, may ultimately yield a very useful diagnostic method.

SUMMARY

"1. Three hundred ninety-five urines were tested by the Visscher-Bowman method for the determination of pregnancy. Correct reactions were obtained in 84.8 per cent of 250 known pregnancies, 87.6 per cent of 65 suspected pregnancies, and 54.8 per cent of 62 nonpregnancies.

"2. Urines of low specific gravity or containing unusual amounts of catabolic reducing agents tend to give false reactions.

"3. The test in its present form is subject to too high a percentage of error to replace the Friedman and Aschheim-Zondek tests."

Skin Tests For Pregnancy

These tests are intro-dermal in character. They are based upon the hypothesis that since there is an anterior pituitary-like substance in the urine of pregnant women, pregnant women should not be sensitive to its intradermal application, while nonpregnant women should be sensitive and give a dermal reaction after injection. In other words, a skin reaction indicates the absence of pregnancy.

Antuitrin-S Cutaneous Test for the Diagnosis of Pregnancy. By Isadore Gersh, American Journal of Obstetrics & Gynecology, February, 1938, Page 301.

His study was based upon 113 individuals, 50 normal men and non-pregnant women, 48 known cases of pregnancy of two or more months duration, and 15 one to nine days post-partum.

"Using antuitrin-S, 20.8 per cent false negative results were obtained in our pregnant patients and 6.6 per cent in the postpartum cases, while 81.6 per cent of the men and 66.6 per cent of the nonpregnant women showed false positive tests for pregnancy (based on skin reactions one hour after the injection)."

Their conclusions are:

"In our hands the anterior pituitary-like hormone (antuitrin-S) cutaneous test for pregnancy was found to be entirely unreliable."

Skin Tests for Pregnancy. By Frank and Wahrsinger. American Journal of Obstetrics & Gynecology, February, 1938, Page 303.

Antuitrin-S was employed in 112 definitely pregnant women with 28 positive skin reactions, falsely indicating that there was no pregnancy present. Eight patients gave doubtful reactions and 76 no reactions at all. In their pregnancy cases, therefore, the accuracy was 68 per cent.

They also employed the antuitrin-S test on 22 medical non-pregnant, 21 postpartum and eight pediatric patients with a high percentage of positives.

They also ran a series of six patients using another anterior pituitary-like hormone but derived from the placenta. The results were only 50 per cent accurate and the work was discontinued.

Another short series was conducted, using progestin (Upjohn) which is a corpus luteum extract. Ninety-eight per cent of all these patients, including pregnant women, produced positive skin reactions, rendering the test definitely inaccurate.

"We must conclude, therefore, that the use of anterior pituitary-like hormone injected intradermally in the manner suggested by Gilfillen and Gregg, and scientifically controlled, in a series of 198 cases, did not provide an accurate or reliable skin test for pregnancy."

COMMENT

This is an interesting series of four articles, demonstrating the present status of pregnancy tests. While there are certain objections to the Friedmann modification of the Aschheim-Zondek test, it still remains the most accurate and reliable. It is hoped that certain sources of error may be eliminated from the urine chemical test and that such modification will ultimately yield a satisfactory diagnostic method which is quicker, more economical, and simpler.

Wendell Long, M.D.

EYE, EAR, NOSE AND THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Building, Tulsa

Treatment of Herpetic Keratitis With Vitamin B. J. Nitzulescu and Ecaterina Triandaf, Jassy, Roumania. The British Journal of Ophthalmology, December, 1937.

From the role that vitamin B1 played in the cure of beriberic polyneuritis, Minot, Strauss and Cobb, were lead to try its action in other nerve diseases. Betaxin is the trade name of the product used.

It was found effective in a case of bilateral trigiminal neuralgia. Corneal Herpes following gonorrhoeal conjunctivitis, in a patient age 16 years did not yield to the usual treatment of anti-neuralgic powders and urotropin, the pain becoming intolerable. Injections of Betaxin daily immediately reduced pain and brought about progressive healing of the lesions. In another patient age 33, with a diagnosis of Keratitis herpetica, a similar result was obtained after the routine treatment had proved futile. A history and detailed treatment is given on both cases. Where, before both patients had not been able to rest at all, after the first injection of Betaxin, a peaceful night was spent.

There is quite a discussion of the theoretical action of the vitamin B1 by the author. He does not consider the manifestations of herpes as a process of hylovitaminasis. He is "inclined to attribute to the vitamin the action of a real medicament, exert-

ing a specific influence, functional and trophic on the nerves, which can be injured by very different aeteological agents."

While two cases furnish no data for a definite conclusion, the author is of the opinion that the results derived are more than a coincidence.

New Technique in the Surgical Treatment of Severe and Progressive Deafness From Otosclerosis. Dr. Maurice Sourdille, Nantes, France. The Laryngoscope, December, 1937.

Barany, Jenkins and Holmgreen pioneered the surgical treatment of otosclerosis.

There are two groups: One which presumes the pathogenesis of otosclerosis and attacks the disease at its root; the operation is performed outside the ear as the "elevation of the supra tympani dura mater" or even far from the ear as the removal of one parathyroid or suppressing its function by ligature of its principal vessels. These operations are designed to arrest the progress of the disease. They are indicated early in the disease. The second group attacks the local functional troubles. The operation is a fenestration of the labyrinth. The technique presents both an acoustic and surgical problem. The author's operation is called a "tympanolabyrinthopexy." It associates "the opening of the external semi-circular canal to the new tympanic system derived from the normal system."

When the semi-circular canal is opened the **perilymph** in turn **flows out** which in the opinion of the author causes a formation in the labyrinth of a **free surface of perilymph.** He likens this to the mechanism of the half-filled flask which is discussed. Hearing acuity was immediately noticeably increased under the above conditions, but the problem was to prevent the closing of the aperture, for when this occurred, hearing acuity was gradually decreased.

In order to prevent this the author joins the covering membranes of the labyrinthine fistula with the superior border of the membrana tympani after a resection of the head of the malleus has been done to increase the membrana's excursions.

This is a three stage operation with intervals of four or five months between. The first two stages transforms the tympanic system and modifies the mastoid region. The third stage establishes the labyrinthine fistula at the level of the new tympanic system. This is one of the disadvantages of the procedure, the length of time, and repeated operation. The other disadvantage is the putting of the interior of the mastoid cavity in direct communication with the cavity of the external auditory canal so making the hazard of an external otitis greater.

Some of the advantages of the procedure are:

1. The definite assurance of function if the operative work is successfully done.
2. It is possible to test the tympanic system and the labyrinthine fistula with a manometer because they are constantly in sight.
3. Only the horizontal canal is opened.
4. No foreign material is added.
5. It is not a one step operation.
6. If it becomes necessary the operation may be touched up without difficulty.

In considering the operative indications one must consider the nature and degree of the deafness, the state of health and indications of primary otospongiosis. The author says the external auditory meatus should be wide and straight and the middle ear of large dimensions, well vascularized and resistant. The contra-indications are mentioned and discussed. A sterioscopic radiogram is a necessity as well as a correct interpretation of same before any operative work is started.

The operative technique of the three stages is given in detail as is also a table recapitulating the results obtained. The author claims 80 per cent positive results. The results according to him are comparable to those obtained in ophthalmology, in cataract and glaucoma.

Clinical Evaluation of Short Wave Diathermy in Otolaryngology. A. R. Hollender, M.D., F.A.C.S. The Eye, Ear, Nose and Throat Monthly, January, 1938.

Conventional and short wave diathermy are discussed. Short wave diathermy creates heat at much greater depth than conventional diathermy. Short waves pass easily through bony structures, while with the longer waves use, this bony structure was an insurmountable obstacle. Therefore this particular therapeutic measure is particularly applicable in the field of otolaryngology.

Heat induces hyperemia and stimulates circulation of lymph. Infection is controlled through increase of the inflammatory process. This form of treatment should be indicated in all conditions accompanied by inflammation and infection.

Some precautions to be observed are: removal of metals from the field of treatment, the proper spacing of electrodes and the special attention to dosage in case of patients suffering from diminished or abolished sensation of heat.

The author's summary follows:

1. Heat has for a long time been used empirically in otolaryngology for the alleviation of pain, but its influence on underlying inflammatory processes is now recognized.
2. The limitations and disadvantages of conventional diathermy, especially in otolaryngology, have largely been overcome by short wave diathermy.
3. The results of several workers on the relation of clinical effects to experimental temperature determinations, especially in the sinuses, are reviewed.
4. For otolaryngological purposes special electrodes are required but any apparatus of adequate wattage utilized in general medicine is suitable.
5. Clinically short wave diathermy is a valuable adjunct in the treatment of nasal sinusitis but insufficiently effective in itself to replace classic therapeutic procedures.
6. Short wave diathermy is of value in promptly relieving the pain of acute tonsillitis, pharyngitis and laryngitis and in shortening their course when combined with indicated constitutional measures.
7. In otology short wave diathermy is an effective remedy for auricular infections, otalgia, acute myringitis and eustachian catarrh, but is of doubtful value in chronic pathological processes.
8. Every practitioner should be thoroughly familiar with dosage and method of application, and avoidance of undesirable reactions.

Some Practical Considerations Relative to Complications of Mastoiditis. J. Hallock Moore, M.D., Huntington, West Virginia. Southern Medical Journal, February, 1938.

Simple sinusitis is listed as the most common and most neglected complication of acute purulent otitis media and early mastoiditis. Over 90 per cent of the author's otitis medias have an additional sinusitis. The antra are the most frequent offenders; pan-sinusitis is not uncommon. He recom-

mends for treatment, irrigation through the natural orifice.

The simplest complication is a cortical perforation. Here must be differentiated either skin or scalp infections with a secondary lymphadenitis, an external otitis and the reaction resulting from the improper use of X-ray therapy.

The external otitis may result from the patient using some blunt object in the canal, irritation from the discharge of an acute otitis media or an actual furunculosis.

Impetigo or eczema are two frequent skin or scalp infections at this site. Lymphadenitis usually accompanies these adding more confusion to the picture.

Overdosage of an X-ray treatment may produce all the signs and symptoms of a cortical perforation.

The author's outline of differential diagnosis is as follows: First be reasonably sure of the diagnosis before operation, a wait of a day or two probably will have no more ill effect than the discomfort suffered by the patient during that time.

The X-ray helps little in the differentiation. It will be cloudy in both cortical perforation and cellulitis with secondary broken-down lymphadenitis.

A careful history and treatment of the local condition will aid most in the making of an accurate diagnosis. The author recommends an alum acetate pack for treatment of a furunculosis or an external otitis. Two or three days thus should reduce the swelling or bring the furuncle to the point where it can successfully be incised. Likewise scalp and skin infections properly treated for the same period of time will clear the diagnostic atmosphere. Amelioration of the X-ray reaction will have taken place also in this space of time.

An exploratory incision is made after two or three days if the symptoms have not subsided with the proper treatment. The surgeon should be prepared at this time to continue with the incision and do a complete mastoidectomy, if indicated.

Sinus thrombophlebitis is treated with a complete ligation of the jugular and anterior facial vein, securing free bleeding from the central end of the lateral sinus. The elapse of more time between the myringotomy and the mastoid operation will cause a less number of blood stream infections. Two or three weeks is the suggested interval.

Too much reliance should not be placed on the Tobey-Ayres test. It is of value only in the normal individual.

The aid that sulfanilimide offers is still problematical.

In case of otitic meningitis an immediate complete radical mastoidectomy is advised; an exception is micrococcus meningitis. Extension occurs from the middle ear by simple erosion of the internal cortex, a rupture of a petrosal cell, through the diploic veins or by the way of the internal meatus through the labyrinth.

Petrositis should be operated early and drained. Either the burr method (Kopetsky & Almour) or the subdural route to the apex, depending upon the operator, may be used.

Extra or intradural brain abscess, according to the author, many times is the result of an improperly performed mastoidectomy. Early operation is necessary.

Concerning labyrinth involvement the author feels that "the average case of acute purulent labyrinthitis is safer in the hands of an internist than in the hands of the otologist."

Discussion by McHenry, Boebinger and Daily.

INTERNAL MEDICINE

Edited by C. E. Bradley, M.D., Medical Arts Building, Tulsa; Hugh Jeter, M.D., 1200 North Walker, Oklahoma City

HUGH, JETER, M.D., F.A.C.P., A.S.C.P.

The Present Status of Rheumatism and Arthritis: Review of American and English Literature for 1936. By Philip S. Hench, M.D., F.A.C.P., Rochester, Minn.; Walter Bauer, M.D., F.A.C.P., Boston; David Ghrist, M.D., Los Angeles; Francis Hall, M.D., Boston; W. Paul Holbrook, M.D., Tucson; J. Albert Key, M.D., St. Louis, and Charles H. Slocumb, M.D., Rochester, Minn. Annals of Internal Medicine, Vol. 11, No. 7, January, 1938.

This is the fourth annual review which abstracts material from 593 magazine articles and 15 books, the latter published in 1936.

The references alone are of very great value.

The following is an abstract of only one portion of the review:

The authors state that gout was called a "forgotten disease." Statistics, the authors believe, do not give an accurate index of the disease, because the requirements of different physicians for a diagnosis of gout differs so materially. Hench stated that only one of four or five cases of gout is correctly diagnosed in its early stages. However, he adds, that in some quarters where physicians are loose with the diagnosis of gout, only one of two or three patients who receive such a diagnosis actually have the disease. Hench reviewed the features of classical gout and divided the course of gouty arthritis into two stages, each consisting of two phases: Stage I is that of acute recurrent gouty arthritis with complete remissions and stage II is that of chronic gouty arthritis with acute exacerbations but incomplete remissions. Hench further lists 20 points as the criteria for the diagnosis of gout. Hench believes that in a case presenting a number of the features listed in the criteria for diagnosis, one must not hesitate to entertain a diagnosis of gout in the absence of the four most characteristic features, namely: Podagra, hyperuricemia, tophi and punched-out areas in roentgenograms.

In a review of the laboratory data it was generally agreed that hyperuricemia is usually, but not always, present in classical gout. Furthermore, they conclude that roentgenograms are generally negative in early cases and are of no help in diagnosis until late in the disease. Roentgenograms of the hand may show characteristic changes not seen elsewhere. The etiology, pathogenesis and treatment are reviewed. The reports of cinchophen toxicity are also reviewed. Comfort believed its use was justified since there is no pharmacologic substitute for it in gout, but it should not be used otherwise. He adds that its dangers can be reduced by discontinuing its use permanently, not temporarily, at the first sign of toxicity and by strictly avoiding surgical procedures on those so affected.

The uric acid problem is reviewed and mention is made of insulin's affect upon purine metabolism; with the conclusion that insulin's action is not direct, but indirect, through an increased secretion of epinephrine (adrenal secretion) brought about by insulin hypoglycemia.

Our Arthritis. By Logan Clendening, M.D. The Saturday Evening Post, February 12, 1938.

The author has herein written a lay article which speaks for itself and is well worth every doctor's attention.

PLASTIC SURGERY

Edited by
GEO. H. KIMBALL, M.D., F.A.C.S.
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A Three-Stage Operation For The Repair of Hypospadias. Report of cases, Oswald Swinney Lowsley, M.D., and Colin Luke Begg, M.D., New York. A. M. A. Journal, February 12, 1938.

The authors describe the types of hypospadias in detail. They also give a resume of different methods that have been tried personally. The authors follow a three-stage operation, utilizing scrotal skin for making the urethral canal. They report 10 cases which they have done since 1932. The results have been good in seven cases. One case died the third day post-operative; one case incomplete.

The paper was discussed by Dr. J. Eastman Sheehan, New York, who points out that we must use skin on its own terms. In order to do that we must know the demands of skin.

In 1933 Dr. Vilray P. Blair reported a plan which utilized scrotal tissue to cover the newly-made urethra which was constructed from the ventral surface of the penis.

Comment: The authors are to be congratulated on what apparently is a very sensible plan for the repair of hypospadias. In utilization of any plan that has been put forth, one will meet with some difficulty, as far as healing is concerned, occasional fistula, breaking down of skin and delay from various causes. The principal delay often is infection. I think the preliminary diversion of the urinary stream by super-pubic drainage is sensible.

The technique of Drs. Lowsley and Begg differ in several respects from that of Blair. Each one seems to have succeeded in his efforts. The high percentage of good results obtained by the more recent method is certainly commendable.

Complete Avulsion of the Scalp and Loss of the Right Ear. James A. Cahill, Jr., M.D., F.A.C.S., and Philip A. Caulfield, M.D., Washington, D.C. S. G. & O., February 15, 1938.

The authors describe in detail a case of avulsion of the scalp with the loss of the right ear which was subsequently repaired by pedicle grafts and costal cartilage. The authors relate the historical phases of this type of work and report altogether 96 cases found in the literature of complete industrial scalping.

A case reported by the authors sustained a complete avulsion of the scalp and the right ear secondary to catching her hair in a fly-wheel. The authors describe in detail the manner of repair.

Comment: It is interesting to note the result in this case following rather extensive tube pedicle grafts taken from the back. Personally I have had one case that sustained a rather extensive avulsion of part of the scalp which was sutured and later developed infection with destruction of considerable portion of the skull.

Another case in a male of 72 years of age, lost one-half of his scalp, right ear and skin of back of neck following a burn. This case was repaired by cleansing the area and supplying split grafts to the neck, removing the sequestra from the skull which was from the outer table, later stimulating granulation by boring small holes down to the diploe and after granulations were well established, covering the area with small grafts.

I say this for the reason that some of these cases are not suitable for transplanting pedicle grafts to the scalp. Each case, of course, is a problem in itself.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D., F.A.C.S.
717 North Robinson Street, Oklahoma City

Trauma as a Factor in Pott's Disease. Max H. Skolnick. Amer. Review of Tuberculosis, XXXVI, 429, September, 1937.

The author points out that trauma has a definite relationship to later development of Pott's disease. Considerable time may elapse between the trauma and the development of active disease, and the slighter forms of trauma seem to be a greater causative factor than severe injury. Symptomatology plays the most important part in the early diagnosis. Considerable time is required for such lesions to become clinically and objectively manifest, but if roentgenograms were taken in every case where symptomatology indicates possible activity, many cases would be discovered before irreparable damage had resulted.

The Regeneration of Bone Transplants. Hans May. Annals of Surg. CVI, 441, September, 1937.

A review of the literature on this subject is presented and the author describes his own research as follows:

An investigation directed to the process of vascularization of a bone graft was carried out by subperiosteally removing the radius (including its two articular ends), placing the removed bone in salt solution and then replanting it in its original bed, and suturing the periosteum and closing the joint capsules. Twenty-five such experiments were performed on dogs, but aseptic healing occurred in only four animals. X-rays were made every eight days. The dogs were killed after five weeks, ten weeks, four months, and ten months, followed immediately in each case by injection of the axillary artery with a turpentine-mercury solution. The radii were removed, X-rayed, and studied histologically with the following findings:

The graft always dies after transplantation; many nuclei disappear, others degenerate, but in from two and a half to four months regeneration occurs by creeping substitution of dead bone by new bone. Small and large vessels grow from the periosteum into the graft; the former early regress as the large vessels progress until the entire graft is supplied by a well-arranged vascular system. That part of the graft not covered by periosteum becomes destroyed by ingrowing fibrous tissue and only small portions are saved by surviving osteoblasts. The periosteum, therefore, is the reliable factor in regeneration when an entire bone, with its closed medullary cavity, is transplanted.

Lambrinudi's Operation for Drop-Foot. F. P. Fitzgerald and H. J. Seddon. The Brit. Jr. of Surg. XXV, 283, October, 1937.

Twenty-four cases in which the Lambrinudi operation has been used are cited. The operation may be used for drop-foot or flail-foot. There have been five failures in the series due to lateral instability at the ankle. Previous to the operation, the procedure is planned from tracings of lateral roentgenograms with the idea that in certain cases the patient will wear a tapering cork to build up the back of the foot. Segments of the astragalus, oscalcis, cuboid, and scaphoid are removed and the

calcaneocuboid joint is cleaned out. The cartilage on the posterior surface of the scaphoid left after removal of a notch is not removed. The cuboid is brought up to the anterior surface of the astragalus and arthrodesed. Likewise the scaphoid is brought upward and forward which brings the forward part of the foot partially or completely up in line. The foot is fixed in a short leg plaster.

Earl D. McBride, M.D., F.A.C.S.

UROLOGY

Edited by D. W. Branham, M. D.
514 Medical Arts Building, Oklahoma City

Local Use of Arsphenamines in Acute Gonorrheal Urethritis. John E. Heslin and William A. Milner, Albany, New York. Journal of Urology, February, 1938.

Sulpharsphenamine in aqueous solution was used as a local instillation in 42 patients in an attempt to determine whether there is any therapeutic value to this drug in the treatment of gonorrhea.

Such treatment was suggested by the definite therapeutic results obtained in the treatment of cocci infection of the upper urinary tract when the drug was administered intravenously as also the specific local action of neosalvarsan in cases of Vincent's Angina.

In a comparison of 42 patients treated by a daily injection of sulpharsphenamine 0.1 gram to the dram of water, as compared to a similar number of patients treated with other more accepted modes, it was found that less time was required to obtain a cure. Complications in the form of posterior urethritis were of less frequent incidence with this form of treatment.

The authors summarize their experience, that in their hands this drug, while not specific, has proven more efficacious than any other in the local treatment of gonorrhea.

Comment: One hardly knows how to comment on such investigations than to say that gonorrhea is a disease of such clinical variability that small series of cases are practically useless in order to form any definite conclusions as to the therapeutic worth of any particular drug or preparation. While such investigation is praise worthy in its aim the average practitioner had better wait further corroberative evidence before discarding more acceptable and better known methods of treatment.

Primary Syphilis in the Female. Paul F. Stookey and Morris Polsky, Kansas City, Missouri. Urologic and Cutaneous Review, February, 1938.

This article details the physical characteristics of the chancre as it occurs in the female. Unlike the lesion that ordinarily presents, primary syphilitic infections involving the cervix produces a large swollen boggy diffuse inflammatory reaction, the so-called "cold edema." This appearance is due to the rich lymphatic network of the cervix. Dark field examination from such lesions will usually show the typical spirochete. Because the lymphatics of the cervix drain into the deep iliac and pararectal glands regional adenopathy is not apparent. As statistics show the primary lesion in women more often involves the cervix the authors stress the importance of thoroughly examining the cervix in suspected instances of syphilitic infection.

Comment: Because syphilis in its early stages is infrequently found in the female as compared to that observed in the male this article is extremely practical and timely. The authors' observation of the characteristic appearance of cervical infection should be of value to each practicing physician. More dark field examination should be made in cases of cervical infections and erosions. Only by detecting syphilis in the "dark field positive and Wassermann negative stage" can we improve our therapeutic results in the treatment of this disease.

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Correlation of Positive Reaction to Tuberculin and Shape of the Chest

S. A. Weisman, Minneapolis, (Journal A. M. A., Oct. 30, 1937), believes that his study, which shows that there is a definite correlation between the deep chest and the positive reaction to tuberculin, adds one more link to the chain of evidence supporting the contention that the deep chest is more or less associated with tuberculosis. It also helps to explain why there is such a high incidence of tuberculosis among the poor in the slum districts. The children in the slums are physically underdeveloped. They are not only shorter and lighter but they have on the average a deep, primitive, infantile type of chest, one that has not gone through the normal process of development. Even the newborn and infants are shorter and lighter and have a deeper chest than the average infant from a better environment. In many large cities the government is wiping out the slum districts and replacing them with modern, well built and well ventilated homes.

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